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THE UNIVERSITY OF ALBERTA

THE ATTITUDES TOWARDS PHYSICAL ACTIVITY OF PHYSICALLY AWKWARD CHILDREN

BY

GEOFFREY MEEK

(C)

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF SCIENCE

DEPARTMENT OF PHYSICAL EDUCATION AND SPORTS STUDIES

EDMONTON, ALBERTA

FALL 1987

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Page 2.

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Dear Geoff:

I would be pleased to have you use the figure "Syndrome of Physical Awkwardness" contained in my presentation to the Association for Children and Adults with Learning Disabilities, given in Yellowknife, N.W.T., and entitled A motor development approach to physical awkwardness. It is understood that it will be appropriately referenced and acknowledged.

Sincerely,

Jane Taylor

M. Jane Taylor

MJT:jm

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FACULTY OF GRADUATE STUDIES AND RESEARCH

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A.B. Nelson

S. Hunka

Date: 28 MAY 1987

DEDICATION

To my little ones

ABSTRACT

The purpose of this study was to analyze the attitudes towards physical activity of physically awkward children.

A Physical Activity Performance Questionnaire (PAPQ) was designed to assess the relationship between performance and attitude. Two separate groups of physically awkward children - severely and mildly awkward - and a group of matched non-handicapped peers formed the sample total of 66 children. It was found that the physically awkward do differ from non-handicapped children in their attitudes towards certain physical activities. Therefore, under certain conditions, attitude (as measured by the PAPQ) and performance (as measured by the presence or absence of physical awkwardness) are related. Age, however, as the length of time within the syndrome of physical awkwardness was not found to be influential on the attitudinal responses.

The results of the Probe section of the PAPQ indicate that the descriptors 'favourite' and 'best performed' elicited different activity responses for all three groups of children. Attitudes arising from prior behaviour transfer to novel experiences. Preferred activities are

most often those that are highly cognitively loaded in their task demands. This was found to be true for both awkward and non-handicapped children. When asked why they took part in physical activity most children in elementary grades said they did so for 'fun' and 'enjoyment'.

PREFACE

As Man's knowledge-base increases as a result of an unquenchable thirst for understanding no stone is being left unturned - passing comets, incurable diseases and even spinal cord 'renervation' are all areas where answers, as yet, are limited. These, however, are 'stones' which are either new or have not been unearthed for a while! But the quest for knowledge is not limited just to these 'stones', many stones have been turned and re-turned as knowledge has increased. These older, more familiar 'stones' form the majority of research today. The constant testing of theory, revising of hypotheses and formulating of propositions are on-going processes. One such 'stone', which forms the foundation of this study, is that of attitudes towards physical activity. In this area, theories and concepts have been developed and tested, hypotheses formulated and scrutinized and propositions created and questioned so that this particular 'stone' is not only being turned, but is constantly rolling forwards to increase Man's knowledge-base. Research like a rolling stone gathers no moss!

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I would like to express my greatest thanks to Dr. Jane Watkinson for her help, guidance and incredible editing abilities during the last eight months (Inter-campus mail has a lot to answer for!) and also for accepting an orphaned graduate student in a year when she acted as Chair of the Department of Physical Education and Sports Studies. I extend my best wishes to her as she prepares to become a McCalla professor and hopes she has an exciting year.

My thanks also go to the other members of my committee for their insight and tremendous expertise in their chosen fields. Dr. Steve Hunka for making multivariate analysis within the realms of humans! And Dr. Brian Nielsen for his valued comments that assisted my research. I would also like to acknowledge Brian's teaching and lecturing abilities, since they set standards at which I am attempting to emulate ("Goff" will never be the same!).

I must also thank Dr. Ted Wall who was brave enough to accept me as his graduate student and provided many and varied learning experiences for which I will always be indebited. Also I must thank his family for allowing myself and my family to share our first

Canadian Christmas with them. Bonne chance a Montreal.

I extend my thanks to both graduate and undergraduate students who have made my time in Edmonton both interesting, challenging and entertaining. My 240 classes will always provide fond memories - "Al'right!"

I promised myself that I would acknowledge the following: Charles Emerson Winchester III, my two typing fingers, the makers of insect repellent and the great Canadian winter of May 1987!!

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CHAPTER I

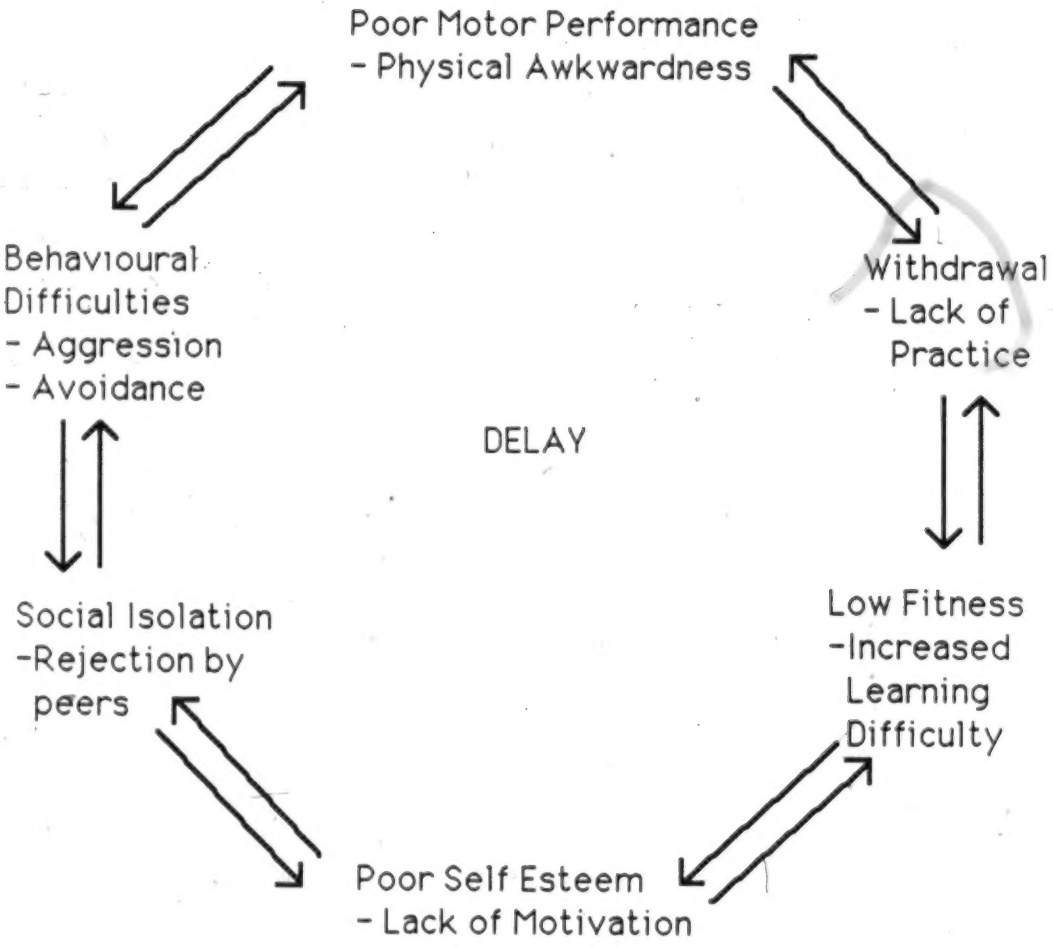
INTRODUCTION

"The joy of moving is experienced by many children; however not all of them gain the physical, intellectual and social benefits that can accrue from positive movement experiences." (Wall and Taylor, 1983, p. 158). Those children who do not fully gain such benefits display a wide range of behaviours, classified as physical awkwardness. Such a classification is not just a description of a number of movement experiences, but is a syndrome of behaviours that result from poor motor performance (see Figure 1).

Understanding the syndrome of physical awkwardness has necessitated analysis of inadequate motor performance and many social and psychological behaviours. One socio-psychological construct that is of paramount importance to the syndrome of physical awkwardness and its associated behaviours is attitude toward physical activity. The focus of this study, therefore, will be to analyze the attitudes of physically awkward children towards physical activity.

FIGURE 1

Physical Awkwardness: A Syndrome of Behaviours (Taylor, 1984)



The concept of attitude as a complex social psychological phenomenon has been analyzed from a plethora of methodological viewpoints and has provoked considerable controversy. Despite the extent of the controversy surrounding the attitude concept little research has been completed on the periods when attitudes are being formed. Consequently, the significance of initial attitudes in determining the degree of future behaviour (or intended behaviour) is also uncertain. Understanding attitude formation is fundamental to understanding the relationship of attitude and behaviour. Many in Physical Education, Recreation and Sports Studies have studied attitude with the intention of predicting or influencing future behaviour or more precisely participation or performance in physical education or physical activities. From this perspective attitudinal studies seem justifiable. However, inconsistencies in the findings (Ajzen & Fishbein, 1977; Wicker, 1969), a disinterest in the importance of prior behaviour (Fazio & Zanna, 1981), inappropriate designs and methodology (Albinson, 1975; Ajzen & Fishbein, 1977), a lack of consistency between the attitudinal and behavioural entities (Ajzen & Fishbein, 1977), and the dichotomy between general and specific attitude objects (Albinson, 1975), have cast considerable

doubt on the accuracy of predictions from attitude to behaviour, and even from behaviour to attitude. Thus, it is with these concerns in mind that this study cautiously proceeds to analyze the relationship between attitude and performance with physically awkward children.

Numerous methods have been designed to study the attitude-behaviour relationship in disparate fields of research. In the physical domain the Attitude Towards Physical Activity (ATPA) inventory developed and implemented by Kenyon (1968a, 1968b, 1970) is regarded as being the most theoretically appropriate method of analyzing attitudes towards physical activity (Albinson, 1975; Sonstroem, 1974).

Kenyon's inventory was based on a theoretical perspective of physical activity meeting the social, vertigo, ascetic, aesthetic, cathartic and health and fitness needs of individuals. The ATPA inventory was designed to assess the willingness of individuals to participate in physical activity according to semantically differentiated attitude statements within each designated domain. Following Kenyon's theoretical framework for physical activity, researchers applied the inventory to study numerous independent variables : champion athletes (Alderman, 1971), life-time sports

(Kidd, 1970), personality factors (Lockhart, 1971), and psychological benefits of physical activity (Sonstroem, 1974). Most, if not all, of these applications, and indeed Kenyon's studies, concentrated on late-teen and adult populations and were essentially analyzing well formed attitudes. It, therefore, became neccessary to modify Kenyon's ATPA inventory for use with subjects in middle childhood. The period of middle childhood is when children are introduced to a multitude of physical activities and consequently it is a time when initial and very important attitudes are being formed. The resultant modification - the Children's Attitude Toward Physical Activity (CATPA) inventory - has been reliably developed and used in recent years (Martin & Williams, 1985; Onifade, 1985; Schutz & Smoll, 1977; Smoll & Schutz, 1980; Schutz & Smoll, 1984; Schutz, Smoll & Wood, 1981; Smoll, Schutz & Keeney, 1976; Schutz, Smoll, Carre & Mosher, 1985). The Smoll, Schutz and Keeney study warrants further attention because of its focus on the attitude-behaviour relationship in children of varying motor ability.

In their 1976 analysis Smoll et al. (1976) correlated the results of the CATPA inventory with three performance domains, but failed to find any significant relationships in either the whole

population or specific sub-samples. These findings indicated that "for those children who excelled in motor performance or those at the lower end of the continuum their level of motor ability was virtually unrelated to their attitude." (p. 802). However, this finding was based on the assumption that a 50 m. run, a standing long jump and a softball throw for distance "constitute the foundation for the complex skills found in essentially all children's games, sport and dance activities." (p. 799) and, therefore, were sufficient indicators of motor performance. But to describe children's motor performance on the basis of these three skills is very limiting and fails to adequately encompass the specific situational and task demands underlying physical activity (Wall, 1982). In addition to the limited representativeness of the three motor performance tests other shortcomings of the study must be highlighted.

An underlying assumption of the Smoll et al. (1976) study was that the attitudes measured by the CATPA inventory would be indicative of the attitudes that might be derived from the performance measures. However, the CATPA inventory is a domain-specific attitudinal measure of the general attitudinal object, physical activity, whereas the measuring of motor

performance domain is highly specific (three tasks). In discussing the correspondence between target and action elements of both attitude and behaviour entities Ajzen and Fishbein (1977) demonstrated that a low correspondence between attitude and behaviour entities often calls in to question the consistency of the attitude-behaviour relationship. "Low and inconsistent attitude-behaviour relations are attributable to low or partial correspondence between attitudinal and behavioural entities." (Ajzen & Fishbein, 1977, p. 913). The lack of correspondence between the attitudinal target (participation) and the behavioural target (motor performance) is proposed as the fundamental reason why Smoll et al. (1976) fail to detect a significant relationship between attitude and performance. Conversely, a high correspondence between the attitudinal target (participation) and the behavioural target (involvement) results in a significant relationship between the two constructs in their study.

The lack of a reported relationship between performance and attitude in the Smoll et al. (1976) study needs to be tested with the physically awkward population. The syndrome of behaviours of physically awkward children identified by Wall (1982) is described as follows: "The child's lack of motor skill, minimal enjoyment in

physical activity and social difficulties within play situations combine to create a disinterest in physical activity and a corresponding low level of physical fitness." (p. 255). If the assumption can be made, from this description, that 'disinterest' is a reflection of poor attitude then the possibility exists for attitude and performance to be related.

The primary justification for this study will be to test the assumptions underlying the syndrome of physical awkwardness - that a lack of motor skill and a disinterest in physical activities are related. At the same time the possibility exists to reanalyze Smoll et al.'s (1976) conclusion that motor performance is unrelated to attitudes towards physical activity. In an attempt to overcome the limiting performance domains set in the Smoll et al. (1976) study a more complete motor test battery (Paton, 1986; Taylor, 1982; Weir, 1986) used in the identification of physically awkward children will determine the performance domains. To overcome the lack of correspondence between the attitudinal and behavioural entities much closer links will be developed between the specific physical activities (behavioural targets) and the feelings toward these physical activities (attitudinal targets), therefore, increasing the

possibility of detecting an existing relationship between attitudes and performance.

Statement of the problem

The central purpose of this study is to determine the attitudes of physically awkward children towards physical activity. In order to closely examine this problem previously identified groups of physically awkward children (Paton, 1986; Weir, 1986) and non-handicapped peers will be asked to identify their own target performances or behaviours and reveal their attitudes towards those targets.

Hypotheses

The following hypotheses will be tested in this study :

1. Severely physically awkward children (0-10th percentile on the motor test battery) will differ from mildly physically awkward children (10-30th percentile) and non-handicapped children in their attitudes towards previously performed physical activities.
2. Age will also influence the strength of the attitude towards physical activity.

3. There will be a difference between the choice of 'best' and 'worst' performed physical activities and 'favourite' and 'least favourite' physical activities from the Physical Activity Preference sheet.

4. Attitudes from previously performed activities will transfer to novel activities.

Further to the main hypotheses it will be possible to analyze whether the task demands (Wall, McClements, Bouffard, Findlay & Taylor, 1985) of the physical activities chosen as 'best', 'worst', 'favourite', and 'least favourite' will differ in the three subject groups, and whether reasons for taking part in physical activities during elementary grades will be represented by the Kenyon (1968) physical activity domains.

Definitions

1. Attitude : "a mental and neural state of readiness organised through experience, exerting a directive or dynamic influence upon the individual's reponse to all subjects and situations with which it is related" (Allport, 1935, p. 810). Further to this theoretical definition of attitude a tripartite model of the attitude concept is commonly accepted, the three components are affect, behaviour and cognition.

As Breckler (1984) stated :

> Affect refers to an emotional response, a gut reaction, or sympathetic nervous activity. One can measure it by monitoring physiological responses...or by collecting verbal reports of feelings or mood. Behavior includes overt actions, behavioral intentions, and verbal statements regarding behavior. Beliefs, knowledge structures, perceptual responses, and thoughts constitute the cognitive component.(p. 1191).

Attitude is operationalized in this study as the feelings towards previously performed physical activities as measured by the responses on a five point Likert-type scale used in the Physical Activity Performance Questionnaire.

2. Motor performance "indicates present athletic ability. It denotes the immediate state of the individual to perform in a wide range of motor skills." (Singer, 1975, p. 216) and is dependent on previous behaviours or experiences. Motor performance is operationalized as the recorded scores on the Motor Test Battery (Taylor, 1982).

3. Physically Awkward Children are those "children without known neuromuscular problems who fail to perform culturally-normative motor skills with acceptable proficiency" (Wall, 1982, p. 254). In terms of this definition 'culturally-normative motor skills' are those that a particular society or nation view as generally performed by a large proportion of the population. This will vary with

gender and age as well as the nature of the activity. Similarly 'acceptable proficiency' will be influenced by the performer's age, sex and the context of the activity. The operational definition for physically awkward children is based on the results of an administration of the Teacher Checklist (Paton, 1986; Weir, 1986) and the Motor Test Battery (Taylor, 1982).

4. Non-handicapped Children are matched peers of the physically awkward children as chosen by the class-teachers using the Teacher Checklist.

5. Physical Activities have been defined by Kenyon as "organized, (structured), nonutilitarian (in an occupational or maintenance sense), gross human movement usually manifested in active games, sports, calisthenics, and dance." (1968a, p. 97).

Limitations

A limitation of the study is the length of time between the administration of the physically awkward testing procedures and the administration of the attitude questionnaire. This approximates to one year. Thus, apart from age, any developmental changes that have taken place will be not be taken into account in this study.

Furthermore, Wall (1982) and Wall et al. (1985) indicate that physical awkwardness is a stable feature of an individual that is unlikely to undergo rapid improvement, therefore, the assumption is made that over the course of one year no rapid improvements in skill have occurred. Also, following the identification studies of Paton (1986) and Weir (1986) a select group of physically awkward children, which included some of the subjects in this study, received a skill acquisition programme in their school setting. Improvements were noticeable, but were not quantified, and may influence the results of this study.

Due to the questionnaire being undertaken in the school environment children may misinterpret 'physical activities' to be only those activities undertaken in physical education class. This may limit the number and variation of physical activities that are identified.

The nature of the school day, with breaks for recess and lunch-hour, limited the time of a number of the interview/questionnaires. Therefore, not all children were asked all the questions from the probe. Furthermore, if a child was particularly unresponsive or did not elaborate on questions asked in the probe the

number of questions was intentionally reduced.

From Paton and Weir's data the number of physically awkward children who were given parental consent to participate was 120 from an original identified population of 250. In this study the 120 previously tested children were contacted to form the population. Therefore, the representativeness of the final chosen population is limited by parental consent. Another limiting factor is the fact that all the tested children are from south-side Edmonton public schools.

Delimitations

The subjects in the study were 7-12 year old children selected from ten schools in the Edmonton Public School Board. The physically awkward children were assessed using the Motor Test Battery (Taylor, 1982) and were identified by a teacher checklist in the studies of Paton (1986) and Weir (1986). The non-handicapped children were matched peers of the physically awkward children and were identified for this study by the class-teachers in each school.

The sex of the children was not considered a confounding variable due to the individualized nature of the questionnaire. The

physical activities chosen were self-reported.

The questionnaire involved self-reported performance evaluations of physical activities used in each question. All children were interviewed separately by one investigator in a one month period between February and March.

The questionnaire was specifically designed to assess the attitudes towards physical activity performance in the three physical activities deemed 'best performed' by the subjects, and the three deemed 'worst performed'.

CHAPTER II

REVIEW OF THE LITERATURE

The Concept of Attitude

By defining attitude as "a mental and neural state of readiness, organized through experience, exerting a directive or dynamic influence upon the individual's response to all objects with which it is related" (1935, p. 810), Allport's conception of attitude has stood the test of time far more robustly than many of the arguments it was designed to review and assist. This resilience is due to Allport's perception of the complexity of attitude. The multidimensionality of the attitude concept, as Allport perceived it, is congruent with the more current component model of attitude, which sees attitude as having at least three components: cognitive, affective and behavioural (Breckler, 1984; Rosenberg & Hovland, 1960). Within Allport's definition the cognitive component is portrayed by the "mental and neural state of readiness", the affective component by the "directive...influence upon the individual's response" and the behavioural component by the "dynamic influence upon the individual's

response." From such a component perspective Allport's definition was arguably ahead of its time and still remains an often cited definition of attitude (Ajzen & Fishbein, 1980; Campbell, 1968; Simon & Smoll, 1974).

However, Allport's definition is far from being the only one. Albinson (1975) highlighted four attempts to convey the term 'attitude' in the literature. A number of researchers reviewed several definitions and opted in favour of one (Albinson, 1975; Ajzen & Fishbein, 1980; Onifade, 1985; Riddle, 1980; Simon & Smoll, 1974 Zaichkowsky, 1978). Other researchers presented and justified their own definition (Breckler, 1984; Hovland & Rosenburg, 1960; Kenyon, 1968 a, 1968 b; Schumann & Johnson, 1976). Others acknowledged the multitude of different definitions and concluded that finding common consensus was not always practical or necessary (Martin & Williams, 1985 ; Schutz et al., 1980; Schutz & Smoll, 1984; Wear, 1951, 1955). And, finally, some researchers attempted to translate various definitions of attitude into a common language that is generally accepted (Ajzen, 1982; Campbell, 1963; Fazio & Zanna, 1977).

A recent trend has been to identify numerous studies that reveal current concern with the attitude-behaviour relationship (that

is, the degree to which measured attitudes can predict observable behaviour) and assume that the present state of this relationship is far more important than any definitional status of the attitude concept (Miller & Grush, 1986; Schutz et al., 1985).

For much of the first half of the century few researchers disputed Allport's claim that the attitude concept was "the primary building stone in the edifice of social psychology." (1954, p. 45). Indeed attitude was viewed so favourably that any reported inconsistencies between actual and predicted behaviours based on attitude were seen as methodological inadequacies; therefore, the attitude-behaviour relationship remained intact. Gradually, however, evidence (Wicker, 1969, 1971) accumulated against the attitude-behaviour relationship to the extent that Forscher's (1963) statement had considerable validity in attitude-behaviour research: "sometimes no effort was made even to maintain the distinction between a pile of bricks and a true edifice." (p. 2). Allport's 'edifice' became Wicker's 'pile of bricks'!

Fortunately, Wicker's bleak outlook prompted a closer analysis of theoretical (Ajzen & Fishbein, 1980; Fishbein & Ajzen, 1975) and methodological implications (Ajzen & Fishbein, 1977; Fazio & Zanna,

1981; Schumann & Johnson, 1976) of the correspondence between attitude and behaviour. With this increased awareness of methodological and theoretical improvements, the edifice facing demolition and near ruins between 1969 and 1972, was built stronger and faster than ever before. The renewed enthusiasm in the attitude-behaviour relationship generated various experimental manipulations based on the assumption that attitude at least partially predicts behaviour. It is this assumption that is the focus of the following section.

The attitude-behaviour relationship: The underlying assumption of attitudinal research

Understanding and determining an individual's behaviour is fundamentally the objective at which social psychology is directed. As Ajzen and Fishbein (1980) state "Most investigators simply worked on the assumption that attitudes explain and predict behaviour and devoted much of their effort to descriptive attitude surveys or to controlled experiments dealing with attitude formation and change." (p. 24). Fishbein and Ajzen's (1975) theory of reasoned action has by far been the most influential approach (Liska, 1984) in

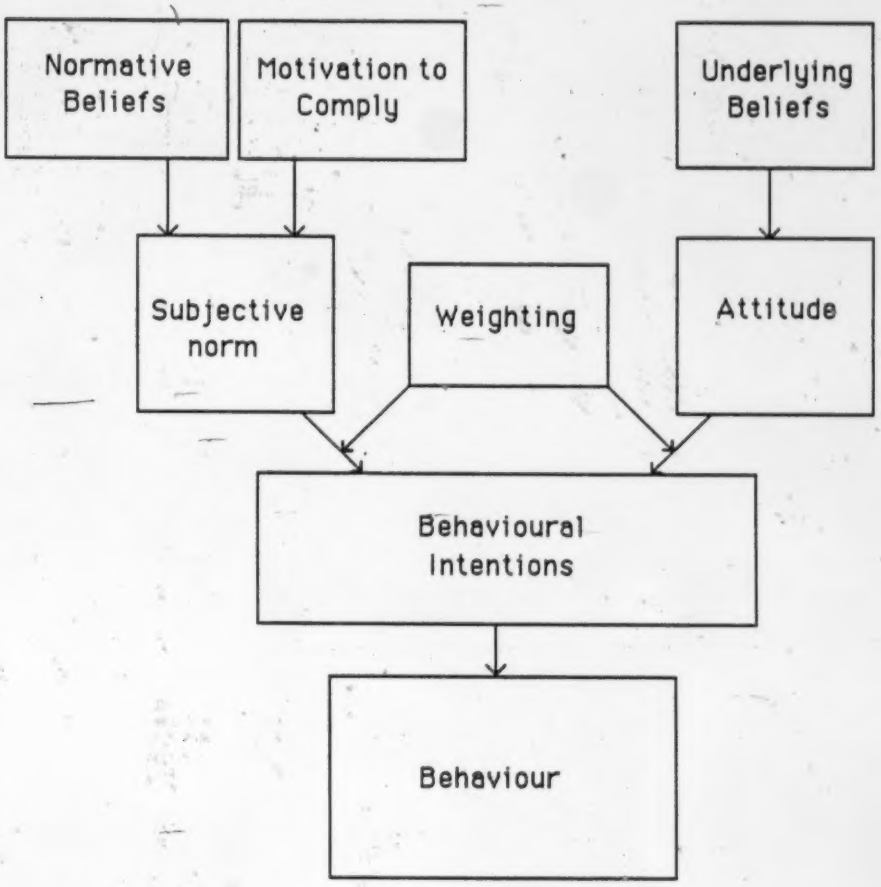
enlightening the 'Wickersian gloom' of the early 1970s!

In their theory of reasoned action, Fishbein and Ajzen identified attitude as part of a linear combination of variables that progress from beliefs to behaviour. Within their model (see Figure 2) attitude is a consequence of an individual's judgement or 'behavioural belief' that performing the given behaviour is either good or bad. Also it is a consequence of an individual being in favour of or against performing the identified behaviour. Attitude will not influence the behaviour directly, as Ajzen and Fishbein (1980) state "our theory views a person's intention to perform (or not to perform) a behaviour as the immediate determinant of the action." (p. 5). Therefore behavioural intentions mediate the effect of attitude on behaviour.

In Fishbein and Ajzen's model, attitude is not the only determinant of an intention to perform. It is conceivable that the same attitude might be expressed in different actions. In order to explain this Fishbein and Ajzen proposed that a person's perception of the social pressures exerted to perform or not to perform a behaviour be acknowledged and incorporated into the theory as a 'subjective norm'. Subjective norms are upheld or derived from 'normative beliefs', which are the social pressures exerted upon the individual,

FIGURE 2

Factors Determing a Person's Behaviour (Adapted from Fishbein and Ajzen, 1975)



as well as the individual's motivation to comply with those social pressures. Therefore, both the attitude and the subjective norm are influenced by underlying beliefs and are, in turn, the major mediators on the intention to perform and subsequently the performance itself.

The inclusion of 'subjective norms' only partly overcomes a dichotomy that could exist where similar attitudes cause differing behaviour. Fishbein and Ajzen saw the necessity for each determinant of intention to be assigned a weighting according to its relative importance in the ultimate composition of the intention. The assignment of relative weights allows for two individuals to have identical attitudes and subjective norms, but to differ in their intentions to perform a behaviour. The first individual's intention may be determined primarily by attitudes whereas the second individual's intention may be determined by subjective norms.

Symbolically, the central equation of Fishbein and Ajzen theory can be presented as :

$$B \sim BI = (A)w1 + (SN)w2 \qquad (1)$$

In equation 1 *B* is the behaviour; *BI* is the intention to perform the

behaviour *B* ; *A* is the attitude towards performing the behaviour; *SN* is the subjective norm; *w1* and*w2* are empirically determined weights.

Despite its prominence in the literature, the theory of reasoned action has not escaped critical examination. Liska (1984) was openly critical of the Fishbein and Ajzen theory when he stated "the model has also obscured certain research questions and now does not seem complex enough to organize and coordinate much contemporary research." (p. 62). In the context of the present study Liska's criticisms of the Fishbein and Ajzen theory necessitates a closer examination of a question Liska attempted to resolve: Do behavioural intentions mediate the effect of attitudes on behaviour?

Do intentions mediate the effect of attitudes on behaviour?

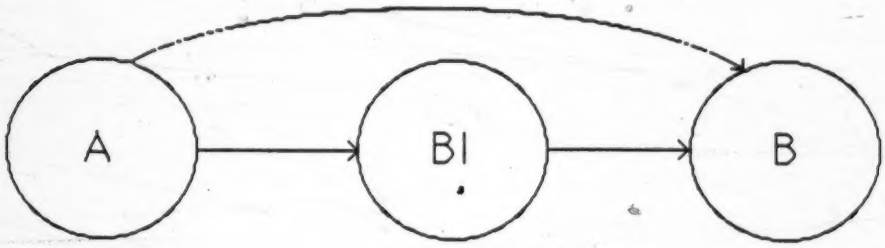
Within Fishbein and Ajzen's model attitudes are not seen as directly influential on behaviour, instead behavioural intentions determine and predict behaviour (see Figure 2). However, this association has been far from universally accepted. Bentler and Speckhart (1979), using attitude and behavioural intentions to predict alcohol and drug usage, proposed a generalized attitude-behaviour

model which disputes a linear combination of variables predicting behaviour (see Figure 3).

Kelly and Mirer (1974) found a slight superiority of attitude over behavioural intentions in predicting behaviour, due to the fact that attitudes were stable and available over lengthy time periods, and therefore were accessed for the study far more easily than behavioural intentions, which were not frequently available. Their results indicated that the influence of attitude on behaviour is not completely mediated by behavioural intentions. Liska also suggested that "if attitudes are more stable than behavioural intentions then as the time interval between the measurement of attitude/intentions and behaviour increases, the predictive capacity of attitudes, relative to that of intentions, will increase." (p. 66). In consequence, Liska formulated a representation of the theory acknowledging both the intervening and the by-passing aspects of attitude on behaviour (see Figure 4), based on the assumption that behavioural intentions are unstable due to their formation immediately prior to the execution of a behaviour.

FIGURE 3

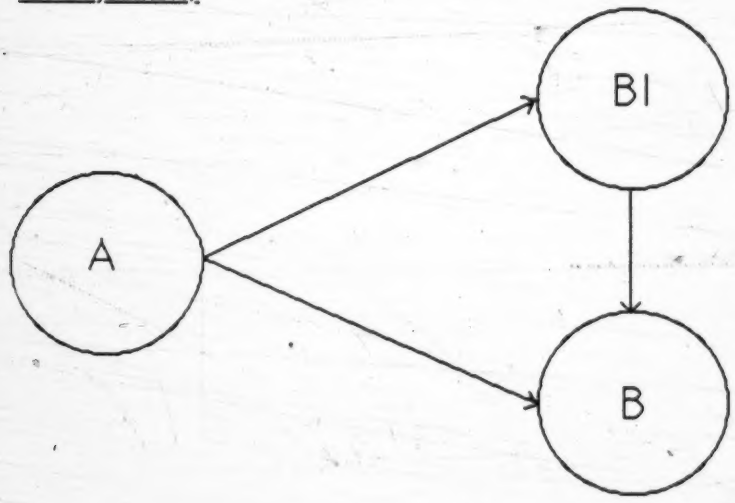
Attitude-Behaviour Model showing the By-passing Effect of Attitude on Behaviour (Adapted from Bentler and Speckhart, 1979)



A - Attitude
BI - Behavioural Intentions
B - Behaviour

FIGURE 4

Attitude-Behaviour Model showing the Interaction between Attitude, Behavioural Intention and Behaviour (Adapted from Liska, 1984)



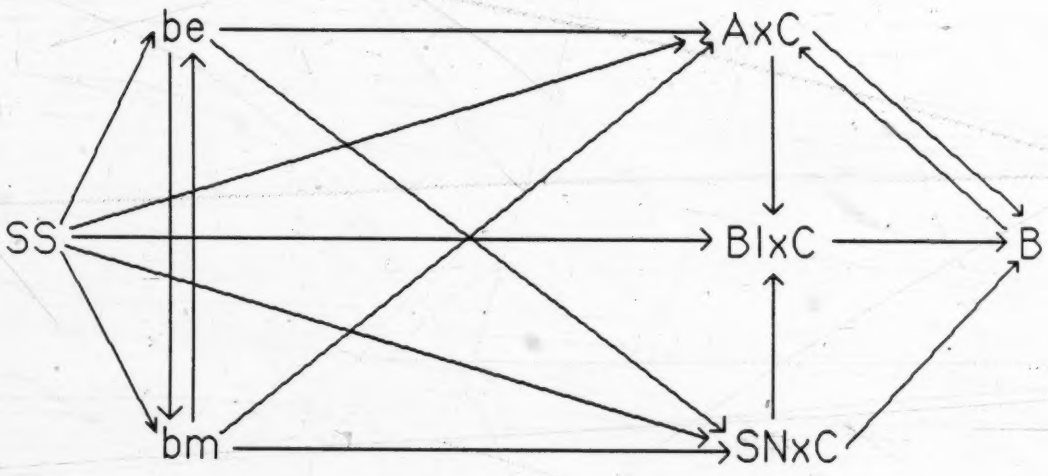
Current adaptations of the theory of reasoned action

Liska (1984) attempted to provide complexity to the theory of reasoned action by proposing an accumulated revision (see Figure 5). The revision included the development that a person's relative status in the social structure, with respect to sex and occupation, will influence behaviour both by attitudes and subjective norms via intentions, and also more directly, by being dependent on resources. Resources (skills, abilities, opportunities and cooperation of others) are contingency conditions, which influence all components of the model. Liska argues that resources are of greater consequence than volitional control and he also includes social structure in the model as a 'background variable' which can influence behaviour without influencing attitude and social norms.

Grube, Morgan and McGree (1986) provide the most recent examination of the effectiveness of the Fishbein-Ajzen model. In a study of smoking intentions and behaviours Grube et al. (1986) tested a model derived from the theory of reasoned action against two modifications of the model. The two modified versions allow for the effects of behavioural norms, and for the interaction between attitude and normative beliefs. The first formulation is represented

FIGURE 5

An Accumulative Revision of the Fishbein-Ajzen Model
(Adapted from Liska, 1984)



SS - Social Structure
C - Contingency Variables
bm - Beliefs about the social expectations of specific others multiplied by the motivation to conform to them
be - Beliefs about the specific consequences of behaviour multiplied by the evaluation
SN - Subjective Norm
BI - Behavioural Intention
B - Behaviour
A - Attitude

by:

$$B \sim BI = (A)w1 + (SN)w2 + (NB)w3 \qquad (2)$$

In this formulation the only difference from the Fishbein-Ajzen model is *NB* or normative beliefs and its respective weighting *(W)*. As Grube et al. (1986) state "It is still additive and assumes that attitude and normative beliefs contribute independently to behavioural intention and behaviour." (p. 82). Grube et al.'s (1986) second formulation identifies an interaction between attitude and subjective norms and between attitude and normative beliefs:

$$B \sim BI = (A)w1 + (SN)w2 + (NB)w3 + (AxSN)w4 + (AxNB)w5 \qquad (3)$$

In equation 3 *AxSN* represents the interaction between attitude and subjective norms, and *AxNB* the interaction between attitude and normative beliefs.

The results of the two experiments indicated that the more complex models accounted for more variance of smoking intentions, with approximately 10% increases in explained variances

where all three models were applied. Therefore, although the theory of reasoned action is applicable, modification of the model to incorporate normative beliefs and/or interactional effects are beneficial in gaining a more complete picture. In this sense Grube et al.'s (1986) analysis not only accepts the lack of complexity of the model of reasoned action, but adds a new methodological dimension to the attitude-behaviour relationship.

'Other variables' influencing attitude and behaviour

The analysis of the attitude-predicts-behaviour assumption, to this point, has highlighted the theoretical and methodological complexity of the attitude-behaviour relationship from the perspective of the Fishbein-Ajzen model. Unfortunately the attitude-predicts-behaviour assumption is compounded by what are generally called 'other variables.' These so-called 'other variables' are influential in this study due to their importance on "descriptive attitude surveys or controlled experiments dealing with attitude formation and change." (Ajzen & Fishbein, 1980, p. 24).

Fishbein and Ajzen provide conceptual order for a vast array of 'other variables', which are delimited in the theory to influencing

behaviour only through attitudes, subjective norms and behavioural intentions. Such a view ignores the potential of these 'other variables', a potential which is of considerable importance to the underlying assumption of this study.

Fazio and Zanna (1981) described the concentration on 'other variables' in terms of a need to answer the question: "Under what conditions do what kinds of attitudes held by what kinds of individuals predict what kinds of behaviour?" (p. 222).

What conditions?

Although Fazio and Zanna do not directly infer "conditions" to be formators of attitude this inference is applied here. Central to Fazio and Zanna's thesis is that attitudes formed on the foundation of prior behaviour are likely to be more predictive of later behaviour than attitudes which are formed by non-behavioural information. Prior behaviour (or direct experience with the attitude object) may either be tangible or overt in nature as opposed to indirect experience formed on the basis of such non-behavioural information as verbal descriptions. Fazio and Zanna propose that attitude formation due to prior behaviour can be represented on a continuum of indirect and

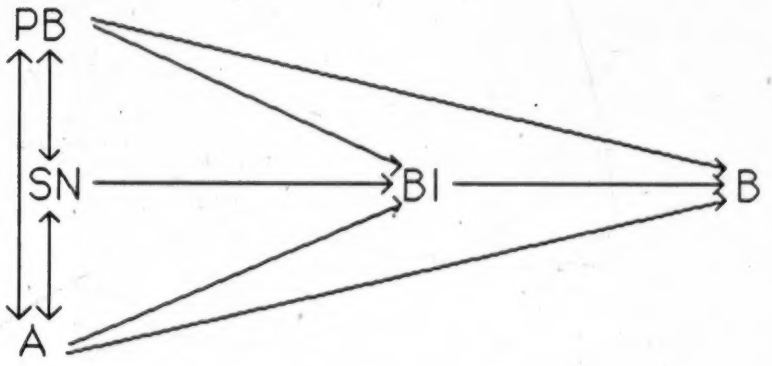
direct behaviour. Although no research is evident in terms of 'middle-ground' the extreme polarization of direct and indirect experience has empirical validation.

Regan and Fazio (1977) in a study of a campus housing shortage at Cornell University identified both an indirect experience group of students who were aware of the housing shortage, and a direct experience group who were actually without permanent quarters and, therefore, directly involved in the housing shortage. Their results indicated that the attitudes of the direct experience group were more predictive of behaviour than those in the indirect experience group in relation to items related to the housing shortage.

The notion of prior behaviour as a formator of attitude also appears in Bentler and Speckhart's analysis (see Figure 6). Prior behaviour is incorporated at the same level as attitude and subjective norms and interacts with these variables. To Bentler and Speckhart prior behaviour is equally as important as both attitude and subjective norms in causing subsequent behaviour. To Fazio and Zanna prior behaviour is regarded as a direct cause of attitude, and therefore only an indirect, linearly dependent, predictor of behaviour.

FIGURE 6

The Incorporation of Prior Behaviour at the same Theoretical Level as Subjective Norms and Attitudes (Adapted from Bentler and Speckhart, 1979)



BI - Behavioural Intention
B - Behaviour
PB - Prior Behaviour
A - Attitude
SN - Subjective Norms

What kinds of attitudes?

Various attitudinal qualities exist which can have importance in eliciting attitude-behaviour consistency. Confidence and clarity of the held attitude can be related to the notion of a bandwidth of acceptability: "the more attitudinal positions an individual finds objectionable, the more well defined the individual's attitude is." (Fazio and Zanna, 1981, p. 180). Thus an individual who holds an attitude with both confidence and clarity will be more able to define positions which are either acceptable or objectionable and, therefore, there is a greater likelihood of attitude-behaviour consistency. Fazio and Zanna argue that this is of particular importance with directly experienced attitudes.

Closely related to Fazio and Zanna 's confidence and clarity are Synder and Kendzierski's (1982) constructs of attitude availability and relevance. Before attitudes can be used as guides to action individuals must be aware of or have knowledge about personal attitudes. This awareness is, in part, due to the behaviourally orientated choices available within any given attitudinal domain and is, also in part, due to the relevancy of those choices to specific individuals. That is, one must believe that one's attitudes ought to be

connected meaningfully to one's behaviours. Synder and Kendzierski, in fact, believe that it is only "when individuals actually define their attitudes as relevant guides to action that they can be expected to turn to knowledge of their general attitudinal orientations for guidance in making their behavioural choices." (p. 167).

The attitudinal requirements of availability and relevance allow an interesting parallel with the knowledge-base approach to skill acquisition of Wall et al. (1985). The availability of knowledge of one's attitudinal orientations from Synder and Kendzierski can be translated from the knowledge-based approach as 'affective knowledge' or the attaching of subjective feelings to actions. Synder and Kendzierski argue that before one can act upon this knowledge to guarantee attitude-behaviour congruence there is a need to be consciously aware of the knowledge relevant to one's actions or behavioural choices. However, the extent to which attitude-behaviour congruence can be superimposed on to the knowledge-based approach is an interesting, and as yet, unresearched theoretical unification.

What kinds of individuals and behaviour?

The view that some individuals, more than others, exhibit substantial correspondence between attitude and behaviour is not new (Bem & Allen, 1974). Miller and Grush (1986) combined two personality scales (the private self-consciousness scale of Fenigstein, Schierer and Buss, 1975, and the self-monitoring scale of Synder, 1974) and found that attitudes and subjective norms are mutually exclusive in certain individual personality types. They concluded that personality scales show the importance of varying personality types on the attitude-behaviour relationship.

The extent to which behaviour will be publically or externally disclosed will have a significant affect on the attitude-behaviour relationship. "It seems likely on both theoretical and some empirical grounds that attitude-behaviour consistency is affected by the visibility of the behaviour." (Schumann & Johnson, 1976, p. 193). Studies on inter-racial dating (Korolewicz & Korolewicz, 1985), and overt prior behaviour (Fazio & Zanna, 1981) support this position.

The importance of the 'other variables' in the attitude-behaviour relationship will become more apparent in relation to the remainder of this study, but the main conclusion of

this section must be that the prediction of behaviour cannot be totally mediated solely by attitudes and subjective norms as Fishbein and Ajzen indicate.

It is apparent that the methodological manipulations of the attitude-behaviour relationship and the theoretical viewpoints highlighted touch many varied social disciplines. The continual focus is on developing a theoretical foundation that will allow the attitude-predicts-behaviour assumption to be accepted.

What becomes apparent is that such a simple assumption is a totally inadequate basis on which to devote much effort "to descriptive attitude surveys or to controlled experiments dealing with attitude formation and change." (Fishbein & Ajzen, 1975, p. 24). Certainly attitude and behaviour can be related, but too many mitigating factors may play havoc with this simplistic assumption.

The methodological approach of the present study is to analyze the attitudes of physically awkward children and examine the relationship between attitude, prior behaviour and behavioural intention with respect to performance. In terms of the theoretical concepts presented in this chapter the study can be considered to be

analyzing the conditions needed for attitude formation, and whether the relationship between prior behaviour, attitude and behavioural intention is linear (Fazio & Zanna, 1982; Fishbein & Ajzen, 1975) or interactive (Bentler & Speckhart, 1979; Grube et al., 1986; Liska, 1984)?

Physical Activity

Physical activity, in terms of its structured and non-utilitarian purposes, has risen in popularity in the past few decades. Factors such as shorter working weeks, long-term unemployment, more facilities and an increased awareness of the importance of fitness and health, both in business and at home, have been responsible for an increase in popularity and participation. Physical activity has become widely acceptable and available to the whole community, including children.

The involvement of children in physical activity has facilitated the development of a vast increase in the availability of physical activities, for example, through mini leagues, clubs, community programmes and summer camps.

Attitudes towards Physical Activity

The Attitude Towards Physical Activity (ATPA) inventory, developed and implemented by Kenyon (1968a, 1968b, 1970), was based on a theoretical perspective of physical activity that was construed as meeting the: social, vertigo, ascetic, aesthetic, cathartic and health and fitness needs of individuals. The ATPA inventory was designed to assess the willingness of individuals to participate in physical activity according to semantically differentiated attitude statements within each designated domain. In 1974 Simon and Smoll argued that the "dearth of knowledge concerning ATPA during the period of middle childhood constitutes a critical void" (p. 409) in the development of a child's basic attitudes towards physical activity. Therefore, an instrument for assessing attitudes of elementary school children (Grades 4, 5, and 6) was developed. Simon and Smoll restated each proposition of Kenyon's (1968b) ATPA inventory in such a way that the descriptions could be understood by children of lower age levels than these involved in their study, in this case, 3rd grade children. The resulting inventory described physical activity as a social experience; for health and fitness; as a thrill but involving some risk; as the beauty in human

movement; for the release of tension; and as long hard training (for example, children were asked 'How do you feel about physical activity for the release of tension - taking part in physical activities to reduce stress or to get away from problems you might have?'). From their analysis Simon and Smoll concluded that "the multidimensional semantic differential CATPA instrument is appropriate for group testing with 4th through 6th grade children." (p. 413).

Despite the fact that physical activity today bears no resemblance to the concept that Kenyon defined in 1968, Kenyon's domains remain widely accepted (Godin & Shephard, 1986; Straub & Felock, 1974; Sonstroem, 1974; Schutz et al., 1985). The reason for the acceptance of Kenyon's model of physical activity is due to the fact that he was able to redefine physical activity as a socio-psychological phenomenon rather than as a delimiting pedagogical construct. In redefining physical activity socio-psychologically Kenyon eliminated a number of classification problems, but other problems surfaced.

By concentrating on securing a theoretical basis for physical activity Kenyon diverted attention away from the attitude being elicited. Furthermore, Kenyon's use of a generic, even heuristic term

for physical activity is unlikely to generate the same intensity of feelings (Fazio & Zanna, 1981) as would a specific physical activity, such as Rugby or Hockey. According to Fazio and Zanna these intense feelings will affect the consistency, confidence and clarity with which an attitude is held, thus raising doubts as to the longevity of the reported attitudes towards physical activity.

Kenyon's model of physical activity not only diverted attention away from complex attitudinal developments, but a major assumption of Kenyon's model is that the attitudinal response will be manifest in the six physical activity domains. However, the evidence is far from emphatic on this issue. In two separate experimental usages of Kenyon's domains (Smoll & Schutz, 1980; Schutz et al., 1981) factor analytic manipulation of the data reported factor structures that called into question the validity of the six domain approach.

Smoll and Schutz (1980) assessed attitudes towards physical activity in a longitudinal study of children in grades four to six. The results of a factor analysis with data collapsed across sex "revealed that the relationship among scores over time was grade dependent rather than subdomain dependent ... These findings supported the conclusion regarding lack of intra-individual stability of (C)ATPA

across grades." (Schutz & Smoll, 1984, p. 193). However, it seems that other conclusions could also be postulated.

Firstly, a basic premise of studying elementary school children is to understand attitude formation and change. However neither CATPA, nor its older equivalent ATPA, study attitude formation, but instead study established attitudes. Secondly, the subdomains do not adequately reflect the attitudinal responses of elementary grade children. Much stronger intra-individual stability has been reported with high school students (Kenyon, 1970; Alderman, 1970) than with elementary school children, tending to suggest that attitudinal reasoning is developmentally orientated. Such a developmental orientation may result from the instability in attitude formation that occurs in elementary grades and also from a lack of participatory reasoning (For example, few elementary aged children have the capacity to acknowledge that the reasons for their participation in physical activities are aesthetic in nature or are for the release of tension! Fun, enjoyment and winning would seem to be more age appropriate participatory reasons for elementary children). It would, therefore, seem that there is a critical period, most probably when attitudes and activities are more constant, during

which time Kenyon's subdomains are more accurate. As Kenyon himself stated "When a conceptual domain is reduced to a logical system of subdomains the nature of the resulting components depends upon the use to which the classification is to be put." (1968a, p. 96). Invoking Kenyon's classification upon elementary aged children in formative attitudinal periods does not allow for the subdomains to be representative of attitudes towards physical activities. Indeed another subdomain may be more applicable in formative attitudinal periods.

Further evidence of the lack of domain applicability in elementary grades can be found in an initial pilot study to the current project. A considerable number of elementary aged children in Edmonton Summer Camps had difficulty with the subdomain descriptions and also the generic term physical activity. Orlick (1972) also reported pilot study concerns with Kenyon's model of physical activity.

> A semantic differential preference scale adapted from Snider & Osgood (1969) and Kenyon (1968), was utilized to obtain an indication of the child's attitudes about sports. However, it was found in a pilot study that eight- and nine-year old boys had difficulty completing this type of scale in questionnaire form. (p. 36)

Schutz et al. (1981) compound the applicability of Kenyon's (1986a) subdomains. In analyzing young athletes of junior high school age at summer sports camps the term physical activity was found to represent the specific sport in which the children participated. To analyze the extent to which specific sports were held to represent physical activity, CATPA and a specific sport equivalent (Children's Attitude Toward Specific Sports - CATSS) were administered. A factor analysis was conducted with results from both CATPA and CATSS being incorporated.

The results showed neither a two factor structure (i.e., showing an independence of CATPA and CATSS) nor a six factor structure (i.e., showing subdomain equivalence between the two applications). In fact, the results showed a three factor structure for the girls and represented combinations of subdomains across inventories. For the boys only two factors were retained, all variables except two aesthetic domains loaded on factor A, whilst the aesthetic domains loaded on factor B. As Schutz et al. (1981) infer these results identify a lack of specificity, even accuracy, in the term physical activity. In conclusion Schutz et al. (1981) are drawn to state: "It seems appropriate to conclude that for young athletes, the

term physical activity is in fact a well defined attitude object." (p. 39), but they fail to add that physical activity is not represented as Kenyon initially had postulated.

A number of concerns need to be highlighted with respect to research of attitudes towards physical activity. These concerns can best be highlighted with reference to the following questions: To what extent has research in physical activity addressed the Fishbein and Ajzen (1975) assumption? And how important are the Ajzen and Fishbein (1977) attitudinal and behavioural entity elements?

To what extent has research in physical activity addressed the Fishbein and Ajzen (1975) assumption?

In chronological terms prior to 1975 Kenyon (1968, 1970), Straub and Felock (1974) and Simon and Smoll (1974) all "worked on the assumption that attitudes explain and predict behaviour and devoted much of their effort to descriptive surveys or to controlled experiments dealing with attitude formation and change." (Ajzen & Fishbein, 1980, p. 24). Furthermore, Kenyon (1968b) identified attitude as "a more promising social psychological unit of analysis" (p. 557) at the very time when social psychologists, such as Wicker

(1969, 1971) and Greenwald (1968), were casting considerable doubt on the attitude-behaviour relationship!

Despite the state of the attitude-predicts-behaviour assumption in social psychological debate, the trend of ATPA research since 1975 has been to assume that attitude predicts behaviour and attempt descriptive studies (Schutz & Smoll, 1984), controlled experiments (Schutz et al., 1981; Smoll & Schutz, 1980; Smoll et al., 1976; Martin & Williams, 1985; Onifade, 1985) and also validational studies (Schutz & Smoll, 1977; Zaichkowsky, 1978; Schutz et al., 1985). One notable exception from this emphasis on the Fishbein-Ajzen assumption is Zaichkowsky (1975).

Studying physical education programs Zaichkowsky (1975) appreciated the limited affective use of the ATPA in attitudinal terms. To overcome this limited usage Zaichkowsky attempted to analyze attitude in terms of its behavioural and cognitive components (Rosenburg & Hovland, 1960). Whilst the behavioural and cognitive terms were analyzed with the use of independently devised techniques Zaichkowsky used the domain components of the ATPA inventory in the analysis of the behavioural component. From a physical education perspective, it was the first study to acknowledge

a truely multidimensional approach to the study of attitudes. Yet, it remains the only multidimensional approach to attitudes so far completed and must be a fruitful direction in which to analyze attitudes towards both physical education and physical activity.

Having identified the dedication of various studies towards the Fishbein and Ajzen assumption it is necessary to pose the question: What position should be taken with regards to whether attitude predicts behaviour?

Firstly, it is necessary to acknowledge the complexity of the attitude-predicts-behaviour assumption and the considerable debate which has ensued in the social psychological domain regarding the relationship between attitude and behaviour.

Secondly, there is a need for a reanalysis of the attitude-predicts-behaviour assumption. Simon and Smoll (1974) and Kenyon (1968) by their emphasis on physical activity and the shortcomings of previous research (namely the focus on physical education rather than physical activity; problems of appropriate test construction; and the unidimensional study of a multidimensional construct) have encouraged researchers to examine physical activity rather than the attitude-predicts-behaviour assumption.

How important are the Ajzen and Fishbein (1977) behavioural and attitudinal elements?

In answering the previous question it became apparent that the assumption of attitude-predicts-behaviour is the major foundation upon which the ATPA research has been built regardless of the state of the attitude-behaviour relationship in social psychology. Furthermore, the physical activity literature devoted its effort to descriptive studies, controlled experiments and validational studies of attitude. Yet, in the social psychological literature test construction has been well researched, well documented and takes various forms (Thurstone & Chave, 1929; Likert, 1932). Therefore, a more relevant approach may be to analyze Ajzen and Fishbein's (1977) entity/element correspondence, rather than inappropriate test construction methodology (Kenyon, 1968b; Simon & Smoll, 1974).

In their analysis of a plethora of research devoted to the attitude-behaviour relationship Ajzen and Fishbein pose the pertinent question: "What are the entities of the attitudinal predictors and the behavioural criteria? (1977, p. 889). Before analyzing this question in light of the ATPA research, it is necessary to identify the entities to which Ajzen and Fishbein were referring.

Both behavioural and attitudinal entities according to Ajzen and Fishbein are composed of action, target, contextual and time elements. The behavioural criteria can be served by any one of these elements or indeed a combination. For the purpose of this study the target element serves as the behavioural entity and this occurs "when heterogenous behaviours toward the same target are observed in different situations and at different points of time." (p. 890). The action element, which Ajzen and Fishbein indicate can be left unspecifed or generalized, will be generalized due to the heterogenous behaviours being observed, and also due to its importance in subsequent analysis. Similarly, the attitudinal predictor can be served by single or combinations of the elements, however, it is most frequently served by the target element.

Strong attitude-behaviour relationships result if the "attitudinal predictor is said to correspond to the behavioural criterion to the extent that the attitudinal entity is identical in all four elements with the behavioural entity." (p. 889). This correspondence is frequently compromised with the overwhelming emphasis being placed on gaining only action and target correspondence. Ajzen and Fishbein proceeded to analyze over 130

attitude-behaviour studies for action and target correspondence to validate their claims.

The use of the action and target correspondence provides interesting analysis in ATPA research.

Schutz et al. (1981) in analyzing physical activity and sport attitudes of young athletes actually make reference to Ajzen and Fishbein's entities. However the interpretation made by Schutz et al. (1981) needs reanalysis and must be quoted at length.

> The attitudinal entity being measured can be described, in Ajzen and Fishbein's (1977) terms, as a measure of an evaluation of a **target** (i.e., the perceived instrumental value of physical activity, e.g., to meet new people and be with your friends). Two of the subdomains scales, Health and Fitness and Catharsis, also measure an evaluation of an **action** (i.e., participation in physical activity). Thus the CAPTA inventory can be interpreted as being useful for measuring an evaluative predisposition towards the attitude object **physical activity**. (p. 32).

Further analysis of this statement is warranted.

Firstly, from close analysis of Ajzen and Fishbein's elements it would seem that confusion exists as to what the attitudinal and behavioural elements are in the CATPA inventory. The underlying assumption in entity correspondence is that the attitudinal and behavioural entities should be similiar in terms of their elements

(see Figure 7). As Ajzen and Fishbein state " a given action is always performed with respect to a given target, in a given context, and at a given point in time." (p. 889). Therefore the behavioural and attitudinal action element of CATPA is participation in physical activity. As the

CATPA inventory protocol indicates "This questionnaire is designed to find out how you feel about **taking part** in physical activity." (Bold for emphasis). This explanation of the action element differs considerably from Schutz et al.'s (1981) version which only includes two of the six domains.

The result is that when the action element of both the attitudinal predictor and the behavioural criterion correspond correlations between behaviour and attitude are high. The entity confusion is most apparent in the Smoll et al. (1976) (see Figure 8, part 1). And when behavioural criterion and attitudinal predictors do not correspond correlations are non-significant as in Smoll et al. (1976) (Figure 8, part 2).

Schutz et al.'s (1976) interpretation of the target element also requires further analysis. Their target element is 'perceived instrumental value of physical activity' or "the attitude object, or

FIGURE 7

An Attitude-Behaviour Entity Element Correspondence Model with Expected Results (Adapted from Ajzen and Fishbein, 1977)

	Action	Target	Result	Action	Target	Result
Behavioural Criterion	X	Y	sig	X	Y	n.s.
Attitudinal Predictor	X	Y		Z	W	

Sig - significant results
ns - low or no significant results

X - Action Elements
Y - Target Elements
Z - Action Element
W - Target Element

FIGURE 8

A representation of the Small, Schutz and Keeney (1976) study indicating correspondence of entity elements and subsequent results

Part 1: Correspondence

	Action	Target	Result
Behavioural Criterion	Involvement in Physical Activity	Perceived instrumental value of physical activity (Domains)	SIG
Attitudinal Predictor	Taking part in Physical Activity	Perceived instrumental value of physical activity (Domains)	

Part 2 : Little or No Correspondence

	Action	Target	Result
Behavioural Criterion	Taking part in Physical Activity	Perceived instrumental value of physical activity (Domains)	N.S.
Attitudinal Predictor	Performance of Physical Activity	Perceived instrumental value of physical activity (Domains)	

target of the CATPA inventory is the construct physical activity." (p. 33). However, this target element requires further qualification. The target is perceived instrumental value of physical activity, but represented in Kenyon's six domains, including health and fitness as well as catharsis. With heterogeneous behaviours (physical activities) serving the same target (the domains) all domains are the target elements. Therefore, it is possible to recompose Ajzen and Fishbein's statement for the CATPA inventory: 'given participation in physical activity (action) is always performed with respect to a given target (whether it be for social growth, for Health and Fitness, as a thrill but involving some risk, to continue social relations, as the beauty in human movement, for the release of tension, or as long hard training).' The behavioural criterion and the attitudinal predictors of the CATPA inventory, therefore, both specify the target element or the domains of physical activity.

From analysis of other CATPA research the misinterpretation of the target and action elements only seems to cause problems for the CATPA when elements of both the behavioural and attitudinal entities do not correspond. A case in point is Smoll and Schutz (1980).

Smoll and Schutz (1980) in a longitudinal study assessing the

effects of CATPA and attitude formation provides further evidence of inappropriate element correspondence causing difficulties in one aspect of the study. Using a cross-sectional and longitudinal method across grade and age cohorts Smoll and Schutz found that stability of attitudes within individuals was not apparent. The explanation cited was that the attitude derived from the CATPA inventory was not an enduring behavioural disposition.

An alternative conclusion is that the attitudinal and behavioural elements differ or alter between measurement periods. Such a conclusion is alluded to in Schutz and Smoll (1984) when discussing their 1980 results. "The absence of strong attitude-behaviour relationships can be attributed to instability in ATPA and/or involvement in physical activity." (p. 188). The formative years of attitudes towards physical activity involve not only an instability of attitudes during composition, but also involve the starting and dropping out of many and varied physical activities, which form the behavioural action. Consequently the action element may vary considerably in a period of three years or three grade levels. In addition a lack of action correspondence may be confounded by a lack of time element correspondence. Obviously, the extent to which

there is a lack of time element correspondence is masked by the longitudinal nature of the study, but the developmental processes that occur in terms of verbal ability, comprehension, reasoning as well as physical maturity must play a role in the interpretation of time element correspondence (see Figure 9).

Conversely, reported group stability on the CATPA across grades may be due to the correspondence of target and contextual elements. Evidence for this stability of elements involves the consideration that group heterogeneity of physical activities is assumed, thus in Ajzen and Fishbein terms the target element must serve as the attitudinal and behavioural entity.

Further evidence of inappropriate element correspondence occurs in Godin and Shephard (1986). Godin and Shephard used both an entity-element questionnaire and the ATPA inventory with middle- and old-aged people to measure attitude towards intentions to exercise. Their results indicated that the element based questionnaire correlated strongly to intentions to exercise and behaviour, as opposed to the ATPA where correlations were greatly reduced. They conclude that "attitudes defined in terms of action, target, context and time elements are more strongly related to intentions and

FIGURE 9
A Representation of the Entity Element Correspondence in the Smoll and Schutz (1980) study

	Action	Time	Context	Target
Behavioural Criterion	Taking part in specific physical activites	Time 1	Physical Education Class	Domains
Behavioural Criterion	Taking part in specific physical activites	Time 2	Physical Education Class	Domains
Attitudinal Predictor	Taking part in physical activity	Time 1	Physical Education Class	Domains
Attitudinal Predictor	Taking part in physical activity	Time 2	Physical Education Class	Domains
Entity Correspondence	No Correspondence		Correspondence	

behaviour than are general attitudes towards an object." (p. 996). However, despite Godin & Shephard's use of the entity elements they fail to appreciate that ATPA involves 'perceived instrumental value of participating in physical activities' as a target element not ' intention to participate', thus there is no correspondence between the target elements of the two questionnaires or inventories (see Figure 10). Therefore, it is highly unlikely that ATPA will gain high correlations and as Godin and Shephard inadvertantly state "The ATPA is an inappropriate tool to predict a subjects intentions to undertake regular exercise." (p. 996-997).

Analysis of entity element correspondence provides alternative theoretical reasoning to augment many postulated conclusions and may be particularly relevant in explaining CAPTA's inappropriateness in contexts other than participation in physical activities. Similarly from a methodological perspective the use of entity elements would serve as a validational measure as to the effectiveness of applying (C)ATPA in appropriate investigations.

In this section attitudes towards physical activities have been analyzed and a number of issues deserve re-emphasis. Research in to

FIGURE 10

A Representation of the Entity Element Correspondence in the Godin and Shephard (1986) study

The Use of the ATPA in Godin and Shephard's Study

	Action	Target	Result
Behavioural Criterion	Taking part in physical activity	Perceived instrumental value of physical activity (Domains)	N.S.
Attitudinal Predictor	Exercise Intentions in Active Sports	Perceived instrumental value of physical activity (Domains)	

Godin and Shephard's Entity Element Questionnaire

	Action	Time	Context	Target	Result
Behavioural Criterion	Exercise Intentions in Active Sports	Twice Weekly	Leisure Time	Fishbein model	SIG.
Attitudinal Predictor	Exercise Intentions in Active Sports	Twice Weekly	Leisure Time	Fishbein model	

N.S. – Low or no Significant Results SIG. – Significant Results

ATPA must not preoccupy itself with the construct of physical activity, but appreciate the complexity of the attitude-behaviour relationship and the importance of the construct of attitude in relation to physical activity.

A considerable amount of the ATPA literature (especially CATPA) has been validational in nature. Theoretically validational studies are of little consequence unless the entities being studied correspond. Similarly the investigational limits of CATPA - namely to analyze perceived instrumental value of participating in physical activity in a domain specific manner - must be highlighted.

The appropriateness of the domain approach to physical activity and its applicability to elementary grades is also a major methodological problem that has been highlighted. The major assumption of this study is that the domains are inappropriate to elementary grades and that participatory reasoning is characterized by developmental progressions similiar to Piagetian concrete and abstract thinking or verbal and reading development. The extent to which such developmental progressions can be characterized in attitudinal reasoning will form the basis of future research.

The summary comment of Godin and Shephard (1986), although

directed at understanding exercise-behaviour has considerable relevance to the research concerned with ATPA.

> We are still debating problems that Zanna & Fazio (1981) classified as first generation questions, characterized with "Is" questions such as "Is their an effect?" However, the fundamentalists of social psychology have already moved through two stages of development and are now concerned with "When" and "How" questions. (Zanna & Fazio, 1981). What we need to know is (1) "When" is there a relation between attitude and behaviour and (2) "How" the effect of attitude upon behaviour is mediated. Further progress in our understanding of exercise-behaviour will be possible only if we stop taking our own beliefs as the base for the study of exercise-behaviour and adopt theories and models as the basis for conducting research. Reference to and use of more basic knowledge of the social sciences might prove helpful in this. (p. 998)

Godin and Shephard's conclusion has implications for ATPA research, since if it can maintain necessary theoretical safeguards, especially in terms of entity element correspondence, then the success of ATPA research can be assured. However, study of attitude-behaviour relations must be founded on the theoretical developments that are occuring in the area of social psychology.

The following section will analyze the current syndrome of physical awkwardness, with particular reference to research undertaken at the University of Alberta.

Physical Awkwardness

A major concern raised in the preceding section by Godin and Shephard (1986) was that in exercise-behaviour research there has been little movement away from first generation questioning. This concern is not only relevant in exercise-behaviour, but is relevant in the study of physical awkwardness. The manner in and extent to which children are unable to execute culturally normative motor skills proficiently has been the major focus of research from early medical beginnings (Orton, 1937) until the present. However, it has been the recent expansion of disciplines concerned with learning disabilities, generically, and physical awkwardness, specifically, that has spawned a plethora of identification procedures and methods.

In the motor-perceptual domain identification procedures are numerous (Gubbay, Ellis & Court, 1965; Keogh, 1966, 1968, 1978; Keogh, Renard, Sugden & Calkins, 1979; Lewko, 1977; Stott & Henderson, 1966; Taylor, 1982; Umansky, 1983; Weir, 1986). Lewko (1976) reviews 250 tests for assessing motor behaviour from varied disciplines. Not only are there numerous testing procedures, but methodological agreement has been difficult to establish.

Furthermore, each specific discipline, even each specific institution, has justified its own identification procedures for a specific population to the extent that the progression from first to second generation questions has not proceeded with the same certainty as has invention and creditation of identification and testing procedures. Certainly without accepted testing procedures the 'How' and 'When' questions cannot be attempted, but without the progression from first to second generation questions the field of inquiry fails to take advantage of the tremendous developments already completed. More importantly educational policy and funding will fail to materialize if a greater understanding of physical awkwardness is not achieved.

The focus of this section will be to analyze the research conducted at the University of Alberta. This institution has developed and justified its own testing procedures and is just beginning to progress from its own first generation research towards answering 'How' and 'When' questions. The studies will be reviewed in chronological order.

Taylor (1982), investigating learning disabled children to detect physical awkwardness, found it necessary to develop a measurement technique "that could differentiate between awkward

and efficient performers and also reflect the natural development of skill with age." (p. 4). A motor performance test battery was developed that constituted adaptations from the Stott test of Motor Impairment (1972), Gubbay's Screening test (1975) and a dodge run (Taylor, 1980)

The resultant procedure was applied to a sample of learning (reading) disabled and control children to detect physically awkward behaviour. Taylor's results showed that the reading disabled children performed the motor test battery at significantly lower levels than the control group and that more reading disabled children than control children were physically awkward. It was, therefore, concluded that the motor test battery should be applied as both a screening instrument and as a clinical technique. However, Taylor's statement that: "particular emphasis should be placed on the specific nature of the behaviours which are being tapped by the battery and how each relates to the concept of physical awkwardness" (p. 109) warrants further attention.

The underlying assumption of the study of physical awkwardness at the University of Alberta has been that: "physically awkward children are children without known neuromuscular

problems who fail to perform culturally normative motor skills." (Wall, 1982, p. 254). Closer scrutiny of the selected tests in the Taylor's battery raises doubts as to the cultural normality of the wide board and stork balance. It is questionable whether these static balances are culturally normative in a society where, almost without exception, the physical activities and skills of elementary aged children are dynamic and generally fast paced.

A number of explanations call into question the cultural normality of these tests. Taylor argues that: "running, jumping, throwing and catching are considered culturally normative skills." (p. 5). Certainly it may be argued that balance is intrinsic to running and jumping, but it is tenuous whether static balances, such as the wide board and stork stand, are sufficiently extrinsic to warrant two independent tests in identifying culturally normative motor deficiency.

The stork stand and wide board balance in the Taylor study are also classified as tests measuring lower limb coordination. The link between static balance tasks and lower limb coordination is not well established. A more appropriate assessment would be that the static balances are testing vestibular sensitivity and total body

coordination. Furthermore, these tests are also testing the child's ability to concentrate and complete a skill, which is never - if ever - practiced and which requires considerable motivation to complete, for example, "it was often necessary to encourage them (the subjects) particularly in the balance and controlled jump tasks." (p. 96). The lack of intrinsic motivation being due to the task itself. The continued use of tests, such as the static balances, may ultimately be accepted in the same manner as the push-up, which is a difficult culturally normative, and non-discrimatory test for physically awkward children (Paton, 1986).

In the present study 'culturally normal' tasks are considered to be those that are frequently used and practiced by Canadian children. Running, bicycling, skating and swimming were identified as some of the most culturally normative skills for elementary aged children.

Umansky (1983) attempted to develop a screening checklist instrument that could be applied in the school system easily, inexpensively and be discriminatory in the identification of physical awkwardness. Umansky argued that the development of a checklist would allow teachers to become informed about physical awkwardness so that remediation might be undertaken earlier in the

child's motor development.

The assessment device involved overt motor activities that were functional and culturally normative, and was delineated into two sections. The sections were activity items, which were representative of typical play and games environments, and fine motor activities. The inclusion of fine motor items was somewhat surprising after Taylor's (1982) conclusions regarding the ineffective discrimination of these activities.

Teachers were asked to identify physical awkward children from a group that also contained non-handicapped children. The results indicated that the gross-motor skills were most influential in determining group differences, whereas no significant differences were apparent for the fine motor tasks.

Teacher experience was analyzed to assess their accuracy in the use of the checklist and their reaction to it. Young teachers, who are generally more accepting of new ideas (Harasymiw & Horne, 1975), appeared to be less accurate in their judgements.

Umansky also assessed teacher accuracy and highlighted problems of inter-rater reliability. She inferred that this problem was due to teacher judgement. "it appears that not all teachers scaled

the items in the same manner. For example, instead of rating an item as being performed very poorly, or poorly, a physically awkward child was sometimes rated as demonstrating adequate performance." (p. 49). Despite higher scalar values the physically awkward children were still rated lower than their non-handicapped peers, which obviously shows internal consistency or intra-rater reliability. Umansky indicated that the high internal consistency "suggests that each of the differentiating items in the checklist seem to be measuring the construct of physical awkwardness." (p. 49).

The checklist not only demonstrates assessment of physically awkward children on culturally normative activities, but is also relatively easy to administer. Even though teacher inter-rater reliability is a major concern to the validity of the study, it should not be seen as detrimental to the needs of these children in the school system.

The major concern of the Umansky study is that it fails to appreciate that a teacher-based assessment device is only as good as the remediation programmes that accompany it, since it is these programmes and resources that give the assessment device educational credence.

Clifford (1985) was the first study to incorporate some second generation questions. Clifford's study attempted to "identify through the use of quantitative and qualitative instruments, a group of children who were truly physically awkward; and to describe some of the major characteristics of physical awkwardness through the use of psychometric, motor performance, recreational and leisure time data." (p. 4-5). The Motor Performance Battery (Taylor, 1982), the Gross-motor Performance Rating Scale (Umansky, 1983), the Perceived Competency Scale (Harter, 1978) and Clifford's Free-time Leisure Pursuits Questionnaire were used as the assessment devices.

The results of the assessments indicated that the Motor Performance Battery and the Gross-Motor Performance Rating Scale effectively identified physical awkwardness. The Free-time Leisure Pursuits Questionnaire revealed that the seven physically awkward children assessed tended to avoid free-time leisure pursuits. A greater interest in individual activities was also apparent. Also sedentary home activities, play with younger playmates, a general apathy towards community-sponsored, social organizations, minor sports and camp environments and enrollment were also prevalent for physically awkward children. The most interesting result was from

the Perceived Self-Competence Scale. The physically awkward children scored at a level where a general feeling of confidence is apparent, Clifford was drawn to state that "the Harter results are both surprising and suspect." The present study may afford the opportunity to analyze the extent to which confidence of physical awkward children is projected onto their attitudes.

Although Clifford appreciates the limited generalizability of her study, especially in terms of sex and birth ranks, the overall impression of the results from the qualitative data supports the concept of physical awkwardness as a syndrome of behaviours and that any number of these behaviours can be elicited at any particular time to represent physical awkwardness.

The area of physical fitness was identified as a much ignored area of research in physical awkwardness. Using a teacher checklist, the Motor-Test Battery (Taylor, 1982), the PWC 170 bicycle ergometer (Gauthier, 1983) and the Shuttle Run, the Standing Long Jump, the Partial Curl-up and Push-up from the Canada Fitness Award (1984) and the Sit and Reach from the Standardized Test of Fitness (1981) Paton (1986) found that physically awkward children were significantly lower in their test results than expected for their age

group. There was no trend towards obesity for physically awkward children as postulated by Clifford, although Paton appreciates that the withdrawal from physical activities may ultimately cause obesity. Paton's results indicate that more appropriate culturally normative fitness tests, such as the Shuttle run, the Standing Long Jump and the Partial Curl-ups should be included within the Motor Test Battery. The recommendations from this analysis of the completed research is that the teacher checklist be analyzed longitudinally, that culturally normative skills be included in the Motor Test Battery and be the focus of future research and that fitness tests also be incorporated in the Motor Test Battery.

The overall impression of these studies is that the development of procedures by Taylor, Umansky and Clifford have led to a comprehensive identification procedure for physically awkward children. Investigators can be confident that the severely and mildly physically awkward children identified by these procedures are in fact appropriately classified. These procedures have allowed the progression to second generation research started by Clifford (1985) and continued by Paton (1986), Marchiori (1987), Causgrove (1987) and the current study.

CHAPTER III

METHODOLOGY

The present study was designed to augment research conducted by Paton (1986) and Weir (1986) with physically awkward children in public elementary schools in south Edmonton and also to further the understanding of the processes involved in the syndrome of physical awkwardness.

The Sample

The studies of Paton (1986) and Weir (1986) assessed the effectiveness of teacher identification of physically awkward children. Teachers used a checklist to identify the physically awkward children. Following teacher identification the children were assessed by a motor performance battery of tests (Paton, 1986, Taylor, 1982) to confirm physical awkwardness and determine its severity.

Some 120 students from the schools involved in the two studies were identified as physically awkward. Once permission

was granted from the Edmonton Public School Board (see Appendix I) these children formed the basis of the physically awkward groups of the current study.

The use of the same schools and teachers familiar with identifying physically awkward children aided in the identification of matched non-handicapped peers, who formed the non-handicapped group. All 120 physically awkward children and 120 non-handicapped peers were contacted by permission letter (see Appendix II).

From the 120 physically awkward children two groups were formed. The procedure for determination of the groupings followed the procedure used by Taylor (1982):

> The sample comprised two parts, a severely awkward group and a generally awkward group. Children were identified as severely awkward if their mean test scores were at or below the 10th percentile on at least three of the following tasks: throw and catch; throw, clap and catch; the dodge run; the balance task appropriate for their age group; and the controlled jump. In order to take into account the natural developmental trend in performance scores, 10 year olds were rated on all three balance tasks. Tasks performed with both preferred and non-preferred limbs were regarded as one variable for the purpose of assessing awkwardness, that is, a child was only penalized once for poor performance with both limbs. Children were identified as generally awkward performers if they had a large number of scores at or below the 20th percentile and two scores at or below the 10th

percentile. (p. 100)

In the present study slight alterations were made to this grouping procedure. A minimum of at least 3 test results had to be recorded below the 10th percentile for the child to be classified as severely physically awkward (see Appendix III). The mildly physically awkward group ("generally awkward") had to have only one test result below the 10th percentile, but had to have at least two other scores below the 30th percentile (see Appendix IV).

The classification procedure identified 61 severely awkward and 30 mildly awkward children. However, loss of children due to moving and lack of parental permission reduced the size of the mildly physically awkward group to 22. It was, therefore, decided to limit each group to 22 (n=66) for the questionnaire and probe. The subjects were in grades 2 to 6. Of the 66 children that formed the complete sample, 16 were between the ages of 7- and 8 years, 25 were between 9- and 10 years, and 15 were between the ages of 11- and 12 years. Forty-two of the 66 children were boys. The sample characteristics are presented in Appendix V.

A further 30 children who returned permission slips from 8 schools were included in the analysis of physical activity preferences

Development of the Instrument

A questionnaire was designed to analyze the attitudes of the children towards specific physical activities. To overcome the claims of previous questionnaires in studying attitude formation and change, a probe was designed to allow greater analysis of attitude formation and change in relation to physical activities.

Physical activity preference and attitudinal questions were developed via expert agreement and Upshaw's (1968) "culling procedures." Subsequently two pilot studies were conducted in the spring and summer of 1986 respectively. The first pilot study conducted in school A with a group of physically awkward children who had received a twice weekly activity programme asked the children for favourability ratings of physical activities. The most highly rated physical activities were then incorporated into the second pilot study conducted with the cooperation of the Edmonton Parks and Recreation summer camps programme. The second pilot study was undertaken to assess whether elementary aged children held differential attitudes towards activities that were classified as simple, reactive, and complex according to the task demands involved

pilot study that indicated that the factor structure was not based on task demands, but was based on the similarity of the skills involved in each physical activity (for example, ice related physical activities such as skating, hockey and ringette loaded on one factor). A number of conclusions were drawn that aided the construction of the final questionnaire.

Firstly, due to the diversity of physical activity preferences expressed by children in the pilot study it was decided that forced choice of attitudinal responses to certain experimenter-chosen physical activities would not be effective. Therefore, in the present study, each child was allowed to report his or her own 'best' and 'worst' performed physical activities, with these self-reported physical activities being the objects of the attitudinal questionnaire.

Secondly, the use of a Likert-type scale was due to the problems encountered with the use of a semantic-differential scale with young children. Therefore, a Likert-type scale was chosen as the most appropriate scale for rating affective attitudes and intentions. This decision is in accord with the Grade 3 CATPA inventory used in British Columbia physical education assessment (Schutz et al., 1985)

varying degrees of 'favourability'.

The use of smiley faces was deemed appropriate for the questionnaire, but semantic scalar feelings were also included to gain age appropriateness and greater understanding of the meaning of the smilely faces. Therefore, every child had an option in interpreting the necessary scalar responses.

Thirdly, it was felt that group administration of the questionnaire would not allow for a clear interpretation of attitude formation, as group pressures would detract from individual attitudinal responses. Each child was, therefore, administered the questionnaire and probe in a one-on-one setting. Such a setting not only allowed for a deeper investigation of attitude formation, but also for greater comprehension on the part of the child, since the questions - with the interjections of appropriate 'best' or 'worst' performed physical activity - were read to each child.

Instrumentation

The child identified the physical activities they felt were their 'best' and 'worst' performed. These were ranked by the child for

performed frequently to be included on the Physical Activity Preference sheet.

The children were then asked to identify their 'favourite' and 'least favourite' physical activities. The inclusion of the 'favourite' and 'least favourite' formed the second section of the Physical Activity Preference sheet.

The Physical Activity Performance Questionnaire (PAPQ) was designed to analyze the 'attitudes' and 'intended behaviours' of the children within each group. 'Attitudes' were determined through a series of questions that asked the respondents to indicate the degree to which they favoured these activities. 'Intended behaviour' involved the child's evaluation of expected performance for the same physical activities.

Within both the attitude and intended behaviour sections four culturally normative activities - running fast, skating, riding a bike and swimming - were also included in addition to the self-reported 'best' and 'worst' performed physical activities. The inclusion of the culturally normative activities was designed to provide a number of commonly experienced physical activities. A child was not limited in his/her choice of physical activities due to the inclusion of the

culturally normative physical activities (for example, one of these activities could be chosen as a 'best' or 'worst' performed physical activity).

The PAPQ was divided into three sections. The first analyzed attitudes towards the respondent-selected and culturally normative activities. The second section involved the child's intentions to perform the physical activities. And the third section concentrated on predicted performance towards unexperienced physical activities. A copy of the PAPQ is presented in Appendix VI.

Procedure

Each child was interviewed individually. During the initial explanations of the questionnaire and the nature of physical activities the child completed the physical activity preference sheet (see Appendix VIII). Following the completion of the Physical Activity Preference sheet the remaining protocol was read to the child.

Each child was read the questions with the appropriate physical activity included and was asked to point clearly to the most appropriate answer. The most appropriate answer was recorded on the answer sheet (see Appendix VIII), which included a code for each

question repeated for the three 'best' or 'worst' performed physical activities. (For example the first question is asked three times: Firstly, with respect to the first ranked physical activity; secondly, with respect to the second ranked physical activity; and thirdly, with respect to the third ranked physical activity).

Following the questions on the respondent-selected and culturally normative activities the subjects were probed on their feelings about performing in novel activities. The answers to these questions (questions 25-46) were recorded to allow for extended explanations of the child's feelings and reasoning towards the physical activities. The tape-recorder remained running during the probe questions (see Appendix XI). The questions that formed the probe were designed to gain a greater understanding of how the children perceived physical activities, with respect to the terminology used in the questionnaire, the child's early experiences, the importance of significant others, and most importantly, the reasons for participating in physical activities. These responses were subsequently transcribed onto the probe question sheet.

Measurement

The responses to the PAPQ were scored using a five point Likert-type scale. To avoid response-set a number of questions had the scale reversed. For all the questions the scale was scored with 5 points for the most 'favourable' response down to 1 point for the least 'favourable' response.

Data were collected in 10 schools during a four week period from February to March 1987 by the investigator.

CHAPTER IV

RESULTS

The Physical Activity Performance Questionnaire

The analysis of whether performance and attitude are related centers on the responses of each child to questions regarding his or her attitudes toward the 'best' and 'worst' performed physical activities (questions 1-24, see Appendix VI).

The relationship between performance, attitude and intention: Factor analysis

The data from questions 1-24 were analyzed with a factor analysis, using a principal-axis with an orthogonal varimax rotation (Kaiser, 1958) to determine the structure of the questionnaire. The factors with a loading of greater than 0.40 are presented in Table I. A nine factor structure, accounting for 99% of the total variance resulted, however, this interpretation must be qualified by the fact that the principal-axis factors are based on the estimated

TABLE I

Orthogonal Factor Loadings above 0.40 for the PAPQ (Questions 1-24)

PAPQ	Type[b]	h_j^{2c}	Factors								
#a			1	2	3	4	5	6	7	8	9
6	W1	.70	.83								
8	W1	.52	.59								
10	W1	.69	.76								
12	W1	.56	.66								
18	W1	.74	.82								
20	W1	.60	.74								
22	W1	.62	.69								
23	W1	.34	.42								
1	B1	.52		.66							
3	B1	.62		.75							
4	B1	.43		.46							
13	B1	.44					.44				
14	B1	.58		.64							
15	B1	.51		.48							
17	B1	.44		.47							
8a	W2	.33			.52						
12a	W2	.47			.61						
22a	W2	.93			.93						
23a	W2	.52			.53						
1a	B2	.53				.68					
4a	B2	.54				.66					
13a	B2	.59				.67					
17a	B2	.53				.53					
5	CN	.43					.61				
16	CN	.45					.55				
24	CN	.37					.55				
1b	B3	.63						.64			
4b	B3	.44						.59			
13b	B3	.48						.63			
17b	B3	.41						.62			
11	SW	.55							.68		
19	SW	.69							.76		
8b	W3	.32								.43	
12b	W3	.51								.53	
22b	W3	.40								.48	
23b	W3	.55								.49	
9	SK	.54									.68
21	SK										.70
% of Common Variance			22.11	13.52	10.36	10.32	9.41	9.16	9.12	8.68	7.29
% of Total Variance			22.06	13.49	10.34	10.30	9.39	9.14	9.10	8.66	7.27

PAPQ Q#[a] - Physical Activity Performance Questionnaire Question Numbers

Type[b] - Factor Interpretation. W1 - !st ranked worst performed activity; w2 - 2nd ranked worst performed activity; W3 - 3rd ranked worst performed activity; B1 - !st ranked best performed activity; B2 - 2nd-ranked best performed activity; B3 - 3rd ranked best performed activity; CN - Riding a Bike and Running Fast; SK - Skating; SW - Swimming

h_j^{2c} - Communalities

communalities. The nine factors are: factor 1 - the first ranked worst performed physical activities; factor 2 - the first ranked best performed physical activities; factor 3 - the second ranked worst performed physical activities; factor 4 - the second ranked best performed physical activities; factor 5 - the culturally normative activities of running fast and riding a bike; factor 6 - the third best performed physical activities; factor 7 - swimming; factor 8 - the third ranked worst performed physical activities; factor 9 - skating.

These results indicate a clear factor structure. Only two variables do not conform to the factor interpretation, these are question 7 - riding a bike (which loaded at 0.32 with factor 5); and question 13 - a best performed physical activity question which loaded at 0.44 with factor 7.

The nature of the factor structure allowed analysis of the 'best' and 'worst' performed physical activities as six dependent variables in a one-way multivariate analysis of variance and the three culturally normative factors as dependent variables in a separate multivariate analysis of variance.

Analysis of group differences on the 'best' and 'worst' performed responses

The analysis of the mean group scores (the group means and standard deviations are presented in Table II) of the attitudes towards the activities identified as 'best' or 'worst' performed revealed significant differences between the awkward and non-handicapped groups, but not between the two awkward groups. A significant main effect between the groups, F (6, 58) = 2.36, $p<.05$, was obtained (see Table III). Further analysis of between group contrasts revealed significant mean differences F (6, 58) = 3.19, $p<.01$, between the severely physically awkward and non-handicapped groups. Also differences between the mildly and non-handicapped were significant, F (6, 58) = 2.25, $p<.05$. The contrast between the severely and mildly physically awkward was not significant.

Analysis of group differences on the culturally normative activities

The analysis of the mean group scores on the three culturally normative factors (the group means and standard deviations are presented in Table IV) revealed no significant main effects, F (6, 122) = 1.33, $p=.24$ (see Appendix IX). All contrasts were also

TABLE II

Means and Standard Deviations for Attitudes Towards the 'Best' and 'Worst' Performed Physical Activities

Groups[a]		'Best' and 'Worst' Performed Physical Activities					
		B1[b]	B2	B3	W1	W2	W3
1	X[c]	4.02	3.44	3.97	2.61	2.36	3.51
	SD[d]	.66	.70	1.05	.99	.73	.81
2	X	4.12	3.62	4.63	2.42	2.55	3.64
	SD	.63	.79	.46	.71	.83	.77
3	X	4.50	3.71	4.34	2.82	3.15	3.70
	SD	.33	.76	.71	.89	.87	.68

Groups[a] - 1 - Severely Awkward; 2 - Mildly Awkward; 3 - Non-handicapped

B1[b] - 1st, 2nd and 3rd ranked 'Best' and 'Worst' Performed Activities

X[c] - Group Means of the 'Best' and 'Worst' Performed Activities

SD[d] - Standard Deviations

TABLE III

Results of MANOVA (Group by 'Best' and 'Worst' Performed Physical Activities)

Effect	Rao Approximate F
Worst Performed Physical Activities (W1, W2, W3) Best Performed Physical Activities (B1, B2, B3) x Groups	2.36*
Group Contrasts	
Severely & Mildly Awkward	1.48
Severely Awkward & Non-handicapped	3.19 **
Mildly Awkward & Non-handicapped	2.25*

* $p < .05$. ** $p < .01$.

TABLE IV

Means and Standard Deviations for Attitudes Towards the Culturally Normative Physical Activities

Groups[a]		Culturally Normative Physical Activities		
		CN[b]	SW	SK
1	X[c]	3.64	3.70	2.64
	SD[d]	.61	1.06	.80
2	X	3.80	3.75	2.59
	SD	.65	.81	.91
3	X	3.93	4.13	3.03
	SD	.45	.80	.65

Groups[a] - 1 - Severely Awkward; 2 - Mildly Awkward; 3 - Non-handicapped

CN[b] - CN - Running Fast and Riding a Bike; SW - Swimming; SK - Skating

X[c] - Group Means of the Culturally Normative Activities

SD[d] - Standard Deviations

non-significant. The three groups did not differ significantly in their attitudes towards culturally normal activities.

The length of time within the syndrome

Due to the non-significant findings between the physically awkward groups it was decided that an analysis would be completed to determine the influence of age within the syndrome of physical awkwardness. The severely and mildly awkward groups were collapsed to form one homogeneous physically awkward group and three age groups (7-8, 9-10, 11-12) were analyzed for group differences. The dependent variables for the multivariate analysis of variance were the six 'best' and 'worst' performed physical activity factors. The results reveal a non-significant main effect F (12, 72) = .73, p = .71, with all contrasts non-significant (see Appendix X).

Activity preferences

The Physical Activity Preference sheet (see Appendix VI) provided data with which to investigate whether or not the subjects' preferences for activities was related to their perceptions of their ability to perform these activities. To do this an analysis was

conducted to examine the extent to which those activities deemed 'best performed' were also ranked as 'favourite' and also whether 'worst performed' correspond to those deemed 'least favourite' physical activities. A Chi-square analysis was conducted on the data to determine whether these choices of physical activity were similar. The 'best performed ' and 'favourite' physical activities analysis resulted in X^2 (df = 3, n = 96) = 19.88, $p<.01$ (see Table V). 'Worst performed' and 'least favourite' physical activities resulted in X^2 (3, 96) = 24.53, $p<.01$. The expected scores for the Chi-square were the frequency of agreement between the 'best' and 'worst' performed and the 'favourite' and 'least favourite' activities (for example, agreement could be between all three, or between two, one or none of the 'best' and 'favourite' physical activities). The assumption made for this Chi-square analysis was that complete randomness of choices were present.

From these results it is apparent that the physical activities deemed 'best' or 'worst' performed and the 'favourite' or 'least favourite' are non-randomly chosen by elementary aged children. Examination of the frequency of preferences (see Table VI) shows that for 'best-favourite' preferences a complete absence of matching

TABLE V

Results of Chi-square analysis for Physical Activity Preferences

Effect	Best Performed/ Favourite	Worst Performed/ Least Favourite
	X^2	X^2
Across Groups (n = 96)	19.88 **	24.53 **
By groups (n = 66)	24.89 **	21.99 **
Groups		
Severely Awkward (n = 22)	10.36 *	10.726 *
Mildly Awkward (n = 22)	3.817	3.09
Non-handicapped (n = 22)	10.726 *	8.18 *

* $p < .05$. ** $p < .01$.

TABLE VI

Frequency of Agreement between 'Best' and 'Worst' Performed and 'Favourite' and 'Least Favourite' Physical Activity Preferences

Group	Matching of 'Best' and 'Favourite' Activities 0	1	2	3	N
Severely Awkward	1	9	9	3	22
Mildly Awkward	3	3	9	7	22
Non-handicapped	1	2	8	11	22
Total	5	14	26	21	66

Group	Matching of 'Worst' and 'Least Favourite' Activities 0	1	2	3	N
Severely Awkward	4	5	11	2	22
Mildly Awkward	3	8	7	4	22
Non-handicapped	4	11	6	1	22
Total	9	24	24	7	66

(0) and 1 matching preference have low totals, whereas the scores for both a complete matching (3) and 2 matching preferences are scored highly. Conversely, for the 'worst-least favourite' activities the higher scores are concentrated on 1 and 2 matching preferences, with the lower totals for both the total absence and complete matching of preferences.

Two further Chi-square analyses were also conducted. A Chi-square for Physical Activity Preferences between the groups resulted in X^2 (6, 66) = 24.89, $p<.01$, and X^2 (6, 66) = 21.99, $p<.01$ for 'best performed-favourite' and 'worst performed-least favourite' respectively (see Table V), indicating that the three groups differed in their preferences towards 'best-favourite', 'worst-least favourite' activities.

To analyze where these group differences occurred in respect to the 'best-favourite' and 'worst-least favourite' three separate Chi-square analyses were conducted on each separate group. For the severely physically awkward group the analysis resulted in X^2 (3, 22) = 10.36, $p <.05$ for the 'best-favourite' physical activities and X^2 (3, 22) = 10.73, $p <.05$ for the 'worst performed-least favourite' activities. The Chi-square for the mildly physically awkward group

resulted in non-significant findings for both analyses. For the non-handicapped the 'best performed-favourite' result was X^2 (3, 22) = 10.73, $p < .05$ and for the 'worst performed-least favourite' X^2 (3, 22) = 8.18, $p < .05$ (see Table V). These results indicate that the terminology used in the questionnaire has a major influence upon the physical activities chosen by children. 'Perceived performance' and 'favouritism' are considerably different (as are performance and participation in Smoll et al. 1976) in their connotation and elicitation of physical activity preferences.

The similarity between attitudes and predicted behaviours

A second hypothesis of the probe was that attitudes towards physical activities in which the child had prior experiences would be influential in determining predicted behaviour about activities that are novel. In the probe the objective was to discern to what children attributed their expectations. The questions regarding novel performances (Questions 25-46) and the transcribed recordings allowed identification of explanations that each child put forward to account for their predicted performances in novel activities. The major trend of the results (see Table VII) was for subjects to

TABLE VII

Results of Reasoning Given for Predicted Performance

Novel Activity (Questions 25-46)	Responses	Percentage of Responses Given			
		Prior Activity	%	Others	%
Speed Skating	38	Skating	90	Miscellaneous	10
Curling	25	Throwing	24	Heaviness	40
				Like	20
				Other	16
Hiking	12	Walking	83	Other	17
Down-hill Skiing	25	Cross-Country	12	Danger	52
				Knowledge	16
				Other	15
Running a Marathon	38	Distance Run	52	Other	15
		Running	23		
		Running Fast	10		
Karate	36	Kicking	8	Difficulty	38
		Fighting	13	Like	11
		Martial Arts	11	Relatives	13
Canoeing	21	Rowing	28	Danger	38
				Difficulty	23
				Other	21
Water-Skiing	36	Balance	13	Difficulty	27
		Skiing	13	Danger	24
		Swimming	13	Relatives	5
Weight-lifting	28	Heaviness	17	Like	25
		Strength	50		
Broomball	10	Ball Skills	10	Easiness	60
				Exercise	20
Ringette	15	Hockey	66	Other	34

attribute their expected performance in a novel skill to prior experiences with activities that are similiar in demands (for example, when asked about Speed-skating subjects responded that they would do well because they had experience in Skating). Other reasons put forward to explain expected ability in novel experiences are attraction to, difficulty of, and risk or danger of, the physical activity as well as the ability of relatives or significant others to perform well in the physical activity. It must be stressed that both good and poor performances in previous activities were cited for expected performance.

The task demands of the physical activity choices

Data collected from the Physical Activity Preference sheet also allowed analysis of the task demands of the chosen physical activities (Wall, 1982). Each activity was classified according to the task demands of the activity, whether simple, reactive or complex. The assignment of physical activities to task demand classifications had been determined by expert agreement previously for the summer pilot study in the Edmonton Parks and Recreation programme. In the current study three separate Chi-square analyses were conducted.

Two underlying assumptions were made, firstly, that subjects would display an even distribution of activities in each of the three choices by task demands (i.e., a simple, reactive, and complex task), and secondly, that each choice of physical activity was independently chosen, i.e., not influenced or related to other choices, thus allowing the Chi-square to examine three physical activity choices in the one analysis. The results indicate (see Table VIII) that an even distribution is far from appropriate. Therefore, a further analysis was conducted. It was decided to undertake a Chi-square analysis where the actual distribution of the non-handicapped subjects' favoured activities in the three categories became the expected distribution for the two physically awkward groups (see Table VIII), this allowed for an analysis of the extent to which the physically awkward children's choices differed from the non-handicapped in terms of the task demands of 'best performed' physical activities. Two separate Chi-square analysis were conducted. The results revealed significance for the severely awkward, X^2 (2, 22) = 7.06, $p < .05$, and also for the mildly awkward, X^2 (2, 22) = 21.97, $p < .01$. The results (see Table IX) indicate that both severely and mildly physically awkward children differ from the non-handicapped children

TABLE VIII

Results of Chi-square analysis of Physical Activity Preferences by Task Demands

Group	X^2	Physical Activities		
		Simple[a]	Reactive	Complex
Severely Awkward	8.272 *	16	17	33
Mildly Awkward	5.818	22	14	30
Non-handicapped	25.717 **	9	16	41

Simple[a] Actual Observed Task Demands (Expected Task Demands = 22)

* p <.05. ** p <.01.

TABLE IX

Results of Chi-square analysis of Physical Activity Preferences and Task Demands with Non-handicapped expected scores

Effect	X^2
Groups	
Severely Awkward (n = 22)	7.06 *
Mildly Awkward (n = 22)	21.97 **

* $p < .05$. ** $p < .01$.

in their choice of the three activities they feel they perform best. Larger differences were found between the mildly physically awkward and the non-handicapped than between the severely physically awkward and non-handicapped.

Reliability of choices and attitudes

Two reliability measures were completed, with a 10% sample from each group, approximately two months after the main collection of the data. Both the Physical Activity Preference sheet and the PAPQ were readministered, the preference sheet to determine whether the 'best' and 'worst' physical activities had altered and the PAPQ, using only the matching physical activities, to analyze any changes in attitudes towards physical activity performance.

The results showed a .67 correlation in the choices of physical activities on the preference sheet. A Pearson Product Moment correlation was undertaken on the answers from the PAPQ and resulted in a .61 correlation.

CHAPTER V

DISCUSSION

The Relationship between Performance, Attitude and Intended Behaviour

The results of the first analysis indicate that on self-reported physical activities differences in attitudes do exist between the three groups in their responses. These results contradict the reported findings of Smoll et al. (1976), where performance and attitude were deemed to be unrelated. The results of the present study are attributable to the more appropriate determination of the performance domain (the teacher checklist and the motor performance battery), and to the correspondence of the entity elements within the questionnaire. The entity elements within the PAPQ, based on Ajzen and Fishbein's (1977) analysis are represented in Figure 11. Finally the appropriateness of the PAPQ can be attributable to the specificity associated with physical activities chosen by the children (Albinson, 1975; Fazio & Zanna, 1981). The use of subject-determined physical activities allows for considerably more clarity in determining the children's attitudinal and intentional responses. Furthermore, a more

FIGURE 11

A Representation of the Entity Element Correspondence of the Current Study

	Action	Target
Behavioural criterion	Past performances of physical activities	Attitudes towards physical activity performance
Attitudinal predictor	Past performances of physical activities	Attitudes towards physical activity performance
Behavioural criterion	Intended performances of physical activities	Attitudes towards physical activity performance
Attitudinal predictor	Intended performances of physical activities	Attitudes towards physical activity performance

sensitive and discriminatory response is expected from the 'best' and 'worst' performed physical activities as opposed to the more generic term of 'physical activity' used in the CATPA inventory (Simon & Smoll, 1974).

Generally speaking the responses of the three groups were hierarchical in nature, with the non-handicapped holding the most favourable attitudes towards activity, and mildly awkward subjects holding more favourable attitudes than severely awkward subjects. Examination of the severely and mildly physically awkward subjects provides interesting analysis. Severely and mildly physically awkward subjects do not differ in mean scores. A probable explanation is that there is a very small difference between the two groups in motor performance (both severely awkward and mildly awkward subjects have performance rankings that are significantly below that of the non-handicapped group). Therefore, there may be a floor effect for these groups in attitudinal scores. The floor effect may be due to the lack of sensitivity of the instrument, this being attentuated by the positive attitudes that were reported for all the groups (see Appendix XII). It was felt that a 5 point Likert-type scale would be sufficently discriminatory for this study, since the

syndrome of physical awkwardness would predict negative attitudes towards physical activity, however the results clearly indicate that positive attitudes occur and that a 7 point Likert-type scale may be more sensitive in future studies. The dependent variables (attitudes and intentions) are important in determining the nature of the measurement scale, since the floor effect in this study was not found in similar physically awkward groups used in the Taylor (1982) study where significant differences between these groups were reported in reading.

The results of the attitudes towards the 'best' and 'worst' performed physical activities are in accordance with the reasoning underlying the syndrome of physical awkwardness. The hierarchical nature of the attitudes may be due to the behaviours within the syndrome that inhibit highly positive attitudinal development. A second influence may be that skill levels, success and self-esteem of the non-handicapped result in more positive attitudes. The assumption is that the non-handicapped operate within a more positive cycle of performance, attitude and intention.

Non-handicapped subjects seem much more stable and positive in their attitudes, even towards the physical activities deemed their

'worst performed'. The confidence and clarity with which the non-handicapped may have developed their attitudes and intentions may have come as a result of considerable success and higher skill levels. In contrast, the attitudes and intentions of the severely physically awkward may be a result of poor performance and the whole downward spiralling syndrome that combines repeated failure, low skill levels and positive (but perhaps unrealistic) perceptions of performance.

An important result of the study is that, inspite of the differences noted above between the groups, physically awkward children do have positive attitudes towards physical activities. These results are in accord with the scores of physically awkward children on the Harter (1978) Perceived Competancy scale in Clifford's (1985) study, where the physically awkward children recorded scores that represented a general level of confidence.

The results of the analysis of attitudes toward culturally normative activities differ considerably from the results of the 'best' and 'worst' physical activities. No significant differences were found between the groups. These results, although somewhat surprising, may be due to the following: firstly, although the physical activities

are specific, they are not contextually defined (i.e., the activities are neither competitive or non-competitive, without reference to time, speed or ability). For instance, does swimming mean performing Red Cross Awards, going to the World-Water Park or swimming in a lake in summer? These contexts (which each child self-determines in the 'best' and 'worst' performed physical activities) are important in that they relate to the specificity of the attitudinal object (Albinson, 1975; Fazio & Zanna, 1981). In this study, each subject may have thought of the activity in their most favourable context and this might obscure group differences that would appear if the question specified the context. Secondly, it was not determined whether each child actually performed the activity, or indeed how frequently or how well. With such lack of specificity in the behavioural target, results have typically shown that group differences may not be seen.

The graphic representation of the scores (see Appendix XIII) for the culturally normative activities shows that swimming, riding a bike and running fast were all highly positive. The most surprising result was that skating was scored very low despite the activity being 'in-season', as opposed to the other activities, and also despite the fact that skating is a popular Canadian activity. In the pilot

studies preceding this study skating was considered to be a simple task. However, the low scores both attitudinally and intentionally may suggest that the task is far more complex. Low attitudinal scores may reflect the complexity of the task, especially for physically awkward children.

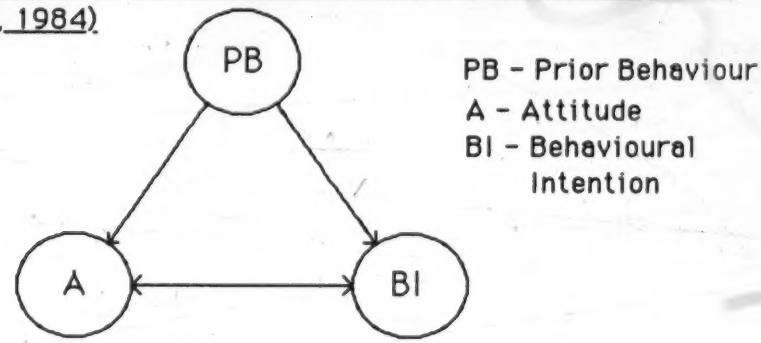
The factor structure that determined the dependent variables for the two MANOVA provides interesting analysis. The most apparent feature is that the responses do not differentiate according to attitude or intention based questions, but differentiate according to the specific physical activities - whether 'best', 'worst' or culturally normative. This leads to two conclusions. Firstly, elementary children do not differentiate between attitude and intention. However, this must be qualified by the fact that in the current analysis both attitude and intention are totally constrained by prior behaviour. From this perspective it is appropriate to conclude that attitude towards activities and intentions regarding those activities influenced by prior behaviour. This negates the linear dependency model proposed by Ajzen and Fishbein (1977), Fazio and Zanna (1981) and advances the concept that there is an interactive relationship between prior behaviour, attitude and intention similar to that

proposed by Bentler and Speckhart (1979) Grube et al., (1986) and Liska (1984) (See Figure 12).

The second conclusion that can be postulated is that the specificity of the physical activity is much more important to elementary aged children than the attitudinal and intentional component within each question. Therefore, the response to

FIGURE 12

The Inter-relationship between Prior Behaviour, Attitude and Intention (Adapted from Bentler and Speckhart, 1979; Liska, 1984)



attitudinal and intention related questions for elementary grades is totally dependent on the target to which the question is directed. This makes it clear that it is necessary to specify the target directly (eg: 'running fast') rather than generalizing as in the term 'physical activity' (CATPA and ATPA). In addition the factorial structure revealed in this study implies that there is not only a need to be specific in the target to which the attitudes and intentions are

directed, but there is also a need to specify the contextual limitations also - i.e., is the physical activity the 'best' or the 'worst' performed physical activity. This is despite Ajzen and Fishbein's (1977) conclusion that gaining correspondence in contextual elements is not as fundamental as gaining attitudinal target and action is not as fundamental as gaining target and action correspondence.

The kinds of behaviours associated with attitude are important to the study. Self-reported physical activity was used as the behaviour in this study. It is postulated that if prior behaviour had been directly experienced before the administration of the questionnaire then the attitude discriminations between the groups may have been even more apparent. This will be particularly evident with overt and highly visible physical activities (Wall, 1982; Wall et al., 1985; Schumann & Johnson, 1976).

It was hypothesized that age would influence the attitudes of the physically awkward children in the questionnaire. It was expected, particularly, that children who had had the syndrome of physical awkwardness for a longer period of time would hold less favourable attitudes and intentions towards physical activity. This was not the case. The symptoms of physical awkwardness may have

been reinforced considerably since the start of regular schooling at age five. Therefore, not only does the questionnaire fail to discern length of time within the syndrome of physical awkwardness as a contributory factor in attitudes towards physical activity performance, but the influence of age within the syndrome may never be adequately answered without extensive longitudinal analysis and pre-school identification. The PAPQ, however, is age-appropriate due to the procedures used in its application. The self-reported physical activities allow for age-appropriate activities and performance ratings. The one-on-one administration of the questionnaire meant that any misunderstandings of either procedures or a particular question were immediately dealt with. Finally, the use of both semantic descriptions and smiley faces aided in the interpretation of the responses by subjects who vary widely in age.

Preferences between severely and mildly physically awkward in their choices of physical activity differ from the hierarchical representation found in other analyses of the study. This may be due to the cultural acceptability of many complex tasks, their excitement, their physical and social reward and also their professional glamourization - a factor of considerable importance in

such age groups. To compound this problem the severely physically awkward children are acutely aware of the importance of many of the complex tasks and the necessity of performing or appearing to perform these tasks well to significant others, such as their peers and parents and relatives. Therefore, they report more complex tasks as their 'best performed', despite what one would expect to be a relative inability in these tasks. The severely physically awkward children may not perform even simple tasks well, which would explain their preference for the more attractive and acceptable in complex tasks. Conversely, the mildly physically awkward children are more confident in their abilities in those activities that they can perform regardless of each activity's task demands and thus, do not need to conform to expected preferences.

However, both the small sample size and the self-reporting nature of collecting the physical activity preferences are influential in the extent to which these results are generalizable. More research is needed to fully understand the importance of subjective norms and physically awkward children's motivation to comply with those subjective norms in a physical activity context.

The reliabilty study provides interesting analysis. The .67

correlation on the physical activity preference sheet signifies that two of the three physical activities remained the same over a two month period. This seems acceptable considering the fact that the new activities were seasonally adjusted - for example, skateboarding replaced skating - furthermore, the children are also within a period of attitude formation and change that is not attributable to seasonal variations, and this may account for some of the variations in choices that occurred.

The readministration of the PAPQ resulted in a correlation coefficient of .61. This result is in accordance with the findings of Schutz and Smoll (1980) where they reported inter-individual instability and grade stability in a longitudinal analysis. The inter-individual instability of the current study may be due to attitude formation and change, as well as changing evaluations and importance of physical activities in differing seasonal conditions. It is also postulated that elementary children's attitudes are not held with the same intensity as adults or even high school students and are dependent a great deal on the last performance (The phrase: "You are only as good as your last game!" may well have attitudinal connotations for elementary children, i.e., 'Your attitude is only as

good as the last game or performance!'). The importance of the variability of attitudes, which makes research of elementary grades hazardous, must not escape the attention of teachers and coaches whose responsibilities must be to foster positive attitudes. The inter-individual instability does not undermine the results of the current study, since the main findings are based on group means, which mask such individual variability.

Children's participatory attributions towards physical activity

One concern that has been raised in reviewing the literature, and from the summer pilot study, has been the idea that reasons for taking part in physical activities are developmentally determined. It was decided, therefore, to examine the extent to which elementary aged children attribute their participation in terms of Kenyon's domains. The question: 'Why do you take part in physical activities?' was consequently added to the probe.

The results collapsed across performance groups showed 71% of the children cited 'fun' as the primary reason for participation (see Table X). 36% mentioned 'enjoyment' either in conjunction with 'fun'

TABLE X

Results to the Question "Why do you take part in Physical Activity?"

Group	Frequency of Reasons		
	Fun	Enjoyment	Other
Severely Awkward (n = 22)	12	10	2
Mildly Awkward (n = 22)	17	9	3
Non-handicapped (n = 22)	18	5	4
Total	47	24	9
% of Sample	71%	36%	13%

or separately. 13% mentioned other reasons. The other reasons mentioned are as follows: "I like to win"; 'For the exercise"; " it does me good"; "something to do"; "better than being at home"; "to get fit"; "its good for you"; "its exciting"; and "to lose weight". 'Winning' and 'exercise' were mentioned by one child who also cited 'fun'. Of all the nine responses only the response "something to do" was cited without either 'fun', 'enjoyment' or any other response. It is apparent that fun and enjoyment are by far the most important factors or reasons for taking part in physical activities for children in these elementary ages. What is apparent is that a number of Kenyon's domains particularly the carthartic, aesthetic, ascetic and even the social domains are not widely held reasons for participating in physical activities for elementary age groups. However, it is acknowledged that 'fun' and 'enjoyment' may be generic descriptors that may lead to more complex and specific reasoning being established, as in the Kenyon domains. The implications of the results from this limited sample raise doubts as to the extent to which the CATPA can be used in elementary grades. It is questionable whether CATPA is examining anything but forced choices for taking part in physical activities. In this regard it is interesting to observe that in the original

development of the CATPA (Simon & Smoll, 1974) the only validation was of the ATPA in elementary grades, not of the extent to which the Kenyon domains are natural choices of elementary children towards participating in physical activity. The results of this questionnaire raise doubts as to the appropriateness of the Kenyon's domains for elementary age-levels.

Conclusions of the results from the PAPQ and the Probe

The results of the study allow certain conclusions to be made. In the context of the current questionnaire, which analyzes well-set attitudes, performance and attitudes toward physical activity performance are related. Awkward motor performance appears to result in less favourable, though still, positive attitudes towards physical activity. The questionnaire is age-appropriate. The length of time within the syndrome of physical awkwardness was not found to be influential on the reponses from the PAPQ, however, longitudinal and earlier identification procedures will be necessary to examine this question in more depth.

Differences in performed physical activities and favourite physical activities exist and support the contention that entity

element correspondence must exist both in terms of attitudinal reasoning and in syntactical formulation for significant results to occur (Azjen & Fishbein, 1977). Attitudes arising from prior behaviour transfer to novel experiences in physical activities where obvious links between novel and previous experiences occur.

Cognitively loaded task demands are most prevalent in physical activity preference choices and physically awkward children differ from non-handicapped children in their choices of physical activities from a task demand perspective. Finally, participatory reasoning for physical activities in elementary grades is represented in fun and enjoyment as opposed to a number of Kenyon's physical activity participatory domains.

CHAPTER VI

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

The central purpose of the study was to determine whether the attitudes towards physical activity of physically awkward children differed from their non-handicapped peers. It was found that the physically awkward do differ from non-handicapped children in their attitudes towards certain physical activities. Therefore, the main conclusion of this study is that, under certain conditions, attitude and performance are related. The conditions that allow for this relationship are that the entity elements must correspond, specific not general physical activities form the action entity-elements with emphasis on the contextual demands of the physical activity, and that more appropriate methods of determining performance groups be utilized. Attitudinal responses are hierarchical in nature with the non-handicapped holding the most favourable attitudes, and the severely physically awkward holding the least favourable attitudes of the three groups. However, the severely and mildly physically awkward children do not differ in mean scores, which raises doubts

as to the group discrimination used in the attitudinal context of the current study.

The study also examined other questions concerned with both the syndrome of physical awkwardness and attitude formation.

Age was not found to influence the attitudes of the physically awkward children towards physical activity performance. However, the PAPQ was considered age-appropriate. The importance of the semantic descriptions associated with physical activity was analyzed and showed that different terms elicit different physical activities.

An indication from the results is that a similarity exists between attitudes towards physical activity in which the child had prior experiences and predicted behaviour of similar or associated untried activities. The severely physically awkward differed less from the non-handicapped children in their choices of physical activities determined by the task demands of each activity than did the mildly physically awkward children.

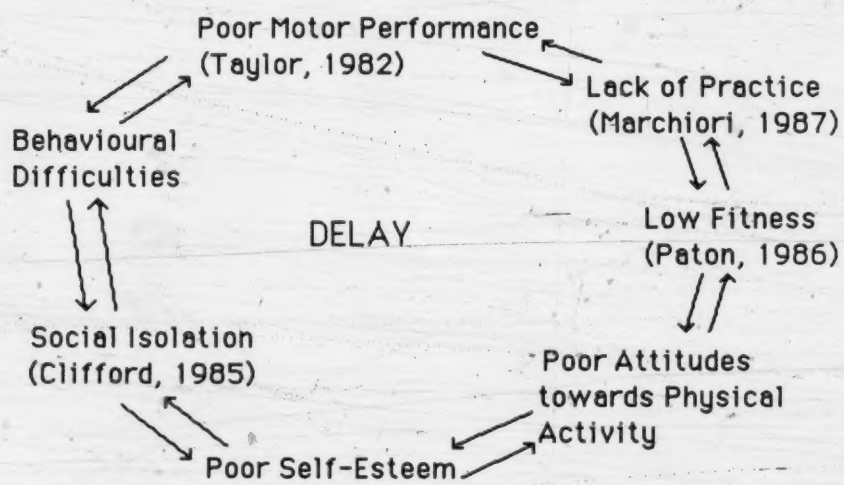
Finally, it is apparent that children do not reason their participation in physical activity in terms of the Kenyon (1986a) physical activity domains, but reason their participation in terms of ideas such as fun and enjoyment.

Recommendations

1. Attitudes towards physical activity performance can be represented within the syndrome of the physical awkwardness:

FIGURE 13

The Syndrome of Behaviours Associated with Physical Awkwardness (Adapted from Taylor, 1984)



2. To fully appreciate the extent of the syndrome of physical awkwardness further research is needed on 'other variables' that influence attitude and ultimately behaviour, such as the self-concept of physically awkward children.

3. The extent to which inventories and questionnaires can analyze attitude formation is tenuous. The conclusions of this study indicate that attitude formation may be developmentally orientated, the

extent to which this is so must be the focus of future research.

4. Replication of this study or further research relating attitude and performance is necessary to confirm the results presented here.

5. A major priority for future studies must be to fully understand the complexity of the syndrome of physical awkwardness and make sure that the 'joy of human movement is truely experienced by all'!

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APPENDICES

APPENDIX I

Edmonton Public School Board Permission Letter

EDMONTON PUBLIC SCHOOLS

December 22, 1986

Mr. W. A. Kiffiak
School Liaison Officer
Division of Field Service
University of Alberta
Edmonton, Alberta
T6G 2G5

BOARD OF TRUSTEES
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Dick Baker
Curt Lund
Bruce McIntosh
Rob McPhee
Usha Procimsky
Bob Smilanich
George Traynor
George Van Horne

Dear Mr. Kiffiak:

Re: Research Request: Attitudes Towards Physical Activity of Physically Awkward Children - Geoffrey Meek

The above research request has been approved on a permissive basis following examination by our department. The approval is subject to the following conditions:

1. Teacher and student participation in the study be voluntary;
2. Parental permission will be sought for students to participate in the study;
3. Confidentiality and anonymity be assured.

Mr. Meek should now contact the principals of the following schools to obtain final approval and to make the necessary arrangements for conducting the study:

Belgravia	Myrna Elliott	Mill Creek	Don Geake
Brightview	John Woitenko	Meyokumin	Warren Fisher
Garneau	Clarice Hansen	Rideau Park	Jim Ferguson
Lansdowne	Jim Lovgren	Satoo	Ron Hodges
Lendrum	Larry Taylor	Windsor Park	Lorraine Boggs

The district would appreciate receiving a copy of the study results as they become available.

Yours sincerely,

Simon Van der Valk
Consultant
Monitoring

SVV:ak

cc: Mr. Geoffrey Meek, U of A
Principals of Belgravia, Brightview, Garneau, Lansdowne, Lendrum, Mill Creek, Meyokumin, Rideau Park, Satoo, Windsor Park

CENTRE FOR EDUCATION
One Kingsway
Edmonton, Alberta T5H 4G9
Telephone (403) 429-8000 Telex 037-3866

APPENDIX II

Permission Letter

11 January, 1987.

Dear Parent or Guardian,

I am a graduate student in the Department of Physical Education and Sports Studies at the University of Alberta. I work under the supervision of Dr. E.J. Watkinson, Acting Chair; Department of Physical Education and Sports Studies. I am keenly interested in the feelings and attitudes children have towards physical activity.

I have designed a simple set of questions that measure the degree to which youngsters enjoy different physical activities. The questions are easy to understand and simply ask children to rate how much they enjoy different physical activities. As you know, some children enjoy team sports while others do not enjoy such competitive activities, but love being involved in more individual activities like riding a bike.

Our questionnaire is designed to assess which physical activities each child really enjoys. The children whom we have tested before have indicated that they enjoy answering the questions. The questionnaire takes under half an hour to complete and is completed under my supervision.

I hope you will allow your child to participate in this study: please indicate your decision on the return slip below.

The project has been approved by the Edmonton Public School Board and by the staff of individual schools, subject to you giving your child permission to participate in the study. Confidentiality and anonymity of both results and children participating in the study will be maintained in accordance with the School Board's policy. If you have questions about this request, please call my advisor, or myself, at 432-2160 or 438-3426 respectively.

Thank you for your help in this matter.

Yours sincerely,

Geoffrey Meek

I allow/ do not allow* my child to participate.

Name of Child_____ Signature_____

* Delete appropriately Date_____

APPENDIX III

Severely Physically Awkward Children Motor

Battery Scores

APPENDIX III

Percentile Scores of Severely Physically Awkward Children on Motor Test Battery

Subject	Motor Tests					
	A	B	C	D	E	F
1	10	0	40	0	0	10
2	10	10	90	10	10	27
3	10	10	0	90	90	45
4	15	10	10	0	0	18
5	15	10	10	10	10	40
6	0	0	0	0	0	20
7	15	0	0	10	60	10
8	20	10	10	30	90	10
9	20	10	10	0	90	0
10	0	10	35	0	0	0
11	10	15	0	0	0	0
12	50	20	0	0	25	10
13	30	10	0	0	0	60
14	20	20	0	0	90	70
15	0	30	20	90	30	35
16	10	0	0	50	10	25
17	0	0	0	0	80	10
18	30	70	20	0	0	10
19	10	30	0	0	90	60
20	10	0	20	0	60	65
21	0	0	10	30	0	10
22	90	20	15	25	90	10

Note. A - Wall Throw; B - Throw, Clap and Catch; C - Stork Balance; D - Wide Board Balance; E - Controlled Jump; F - Shuttle Run

APPENDIX IV

Mildly Physically Awkward Children's Motor Test

Battery Scores

APPENDIX IV

Percentile Scores of Mildly Physically Awkward Children on Motor Test Battery

Subject	Motor Tests					
	A	B	C	D	E	F
1	30	50	0	30	30	95
2	25	0	15	30	20	20
3	40	40	15	30	10	15
4	10	20	90	90	30	90
5	60	90	10	30	90	30
6	0	20	20	20	40	70
7	80	30	0	65	90	20
8	40	80	25	10	30	60
9	80	70	40	10	30	15
10	0	20	25	90	90	15
11	30	30	90	20	90	15
12	30	20	90	70	90	10
13	50	50	15	10	20	35
14	20	20	90	30	90	10
15	90	70	90	10	15	25
16	30	20	10	90	80	25
17	35	15	0	30	90	35
18	40	30	20	90	10	90
19	50	30	20	25	25	10
20	90	20	20	15	20	10
21	60	50	15	0	20	47
22	50	80	0	20	60	15

Note. A - Wall Throw; B - Throw, Clap and Catch; C - Stork Balance; D - Wide Board Balance; E - Controlled Jump; F - Shuttle Run

APPENDIX V

Sample Characteristics of the

Physically Awkward Children

APPENDIX V

Sample Characteristics

School	Group[a]	n[b]	Sex	
			Male	Female
A	1	1	1	
	2	2	2	
	3	1	1	
B	1	5	4	1
	2	4	3	1
	3	9	6	3
C	1	4	4	
	2	2	2	
D	1	2	1	1
	2	1		1
E	1	3	2	1
	2			
	3	1		1
F	1	4	2	2
	2	3		3
	3	1	1	
G	1	1		1
	2	3	3	
	3	6	3	3
H	1	2		2
	2	7	3	4
	3	4	3	1
TOTAL		66	41	25

Group[a] Group 1 - Severely Awkward; Group 2 - Mildly Awkward; Group 3 - Non-handicapped

n[b] Numbers of children per group per School

APPENDIX VI

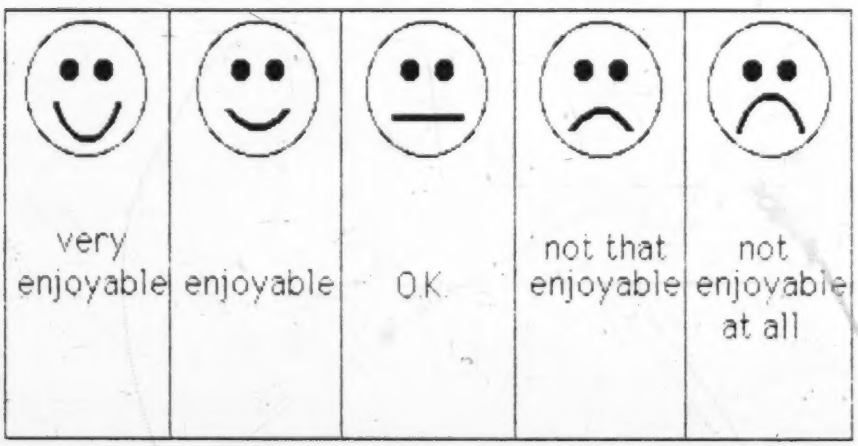
The Physical Activity Performance Questionnaire

PHYSICAL ACTIVITY QUESTIONNAIRE

The following questionnaire will ask you about attitudes you have towards your best and worst performed physical activities. A physical activity is any organized sport (e.g. Hockey, Softball or Soccer), game (e.g. Murderball, Dodgeball or Tag), recreational physical activity (e.g. Frisbee, Riding a bike or Skating), dance (e.g. Ballet or Jazz) or any other activity that envolves physical movement.
On the next page you will be asked to list both your best and worst performed physical activities and also your favourite and least favourite physical activities.
The questions will involve your best and worst performed physical activities. The following is an example :

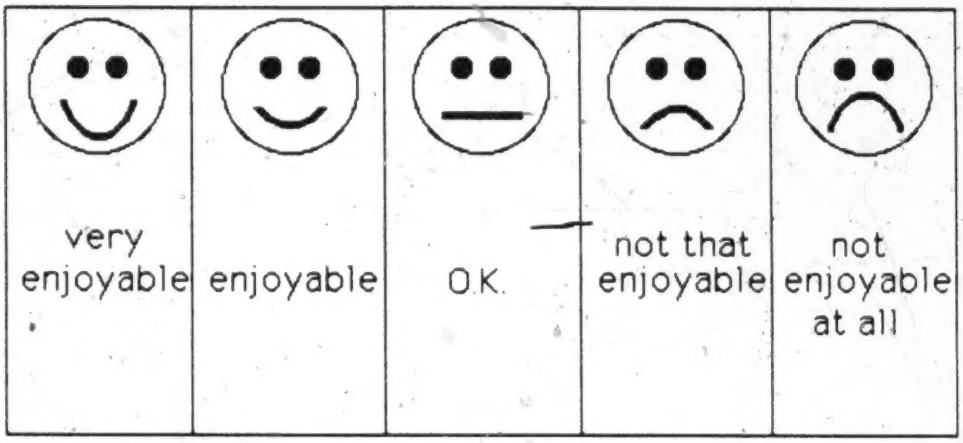
How much do you enjoy _____ ?

To replace the line I will say one or more of your best or worst physical activities. We will go through the questions together and I will read each question to you.
You will answer by pointing to ONE of the answer choices :

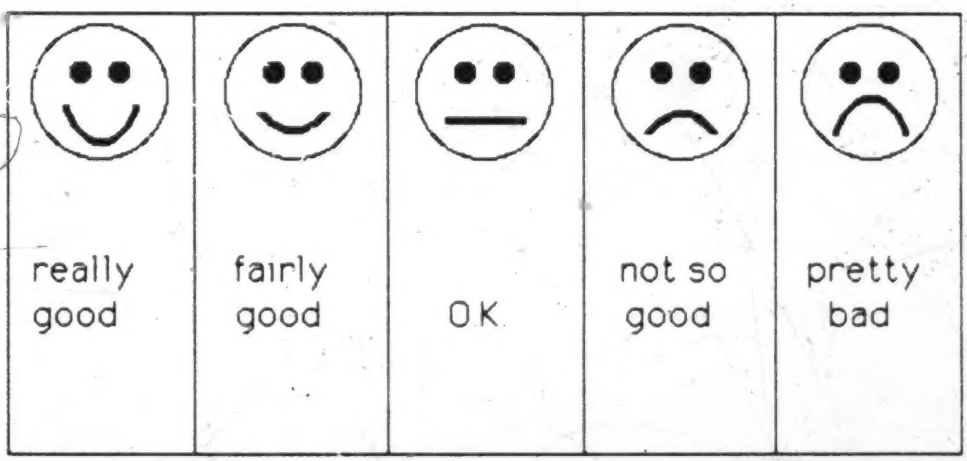


There are no right or wrong answers. Do not think for too long on any particular answer, since it is your first attitude towards the physical activity that I am interested in. Also I may ask you to explain your answer, this is just to find out why you like or dislike certain physical activities.

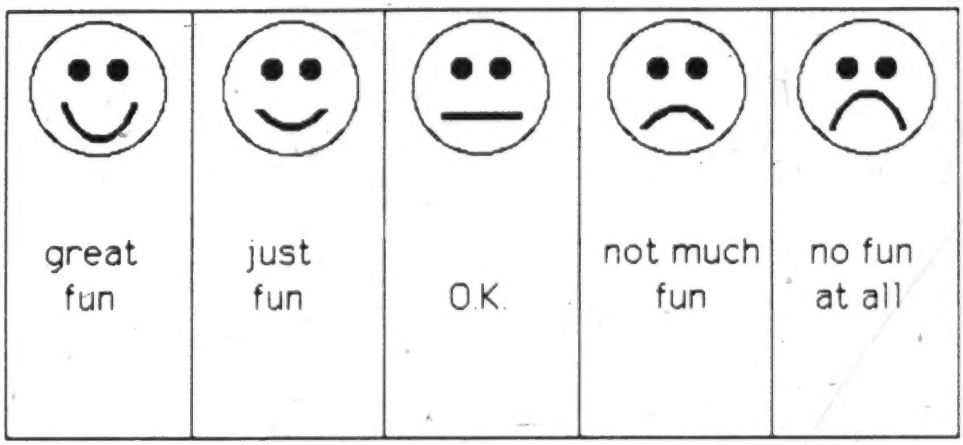
1. How much do you enjoy _____ ?



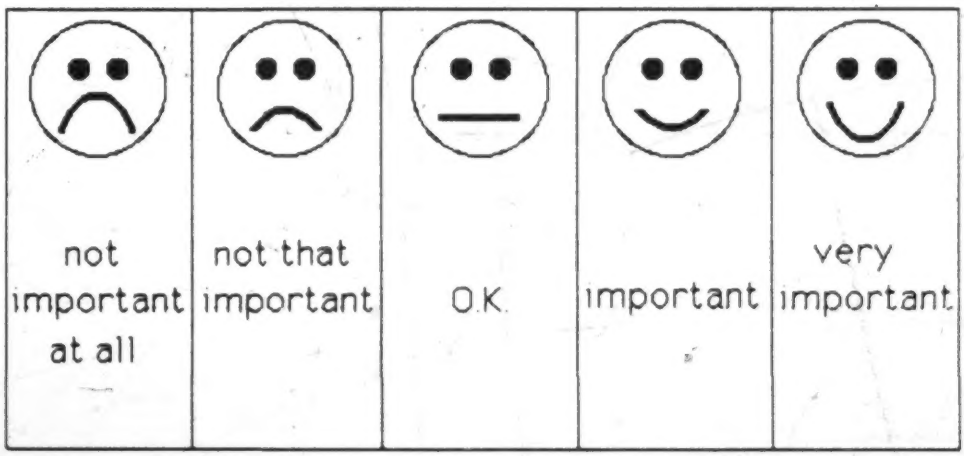
2. Your experiences in _____ before have been ?



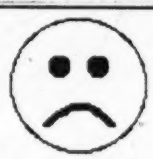
3. Have you had fun doing _____ ?



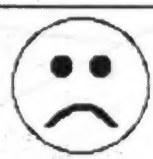
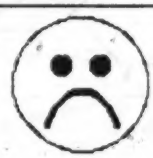
4. Has _____ been important to you in the past ?



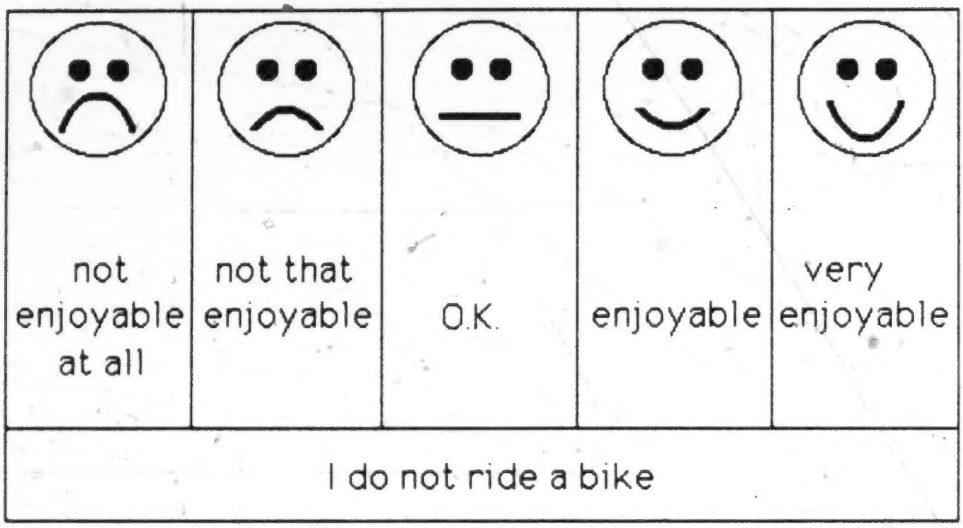
5. How enjoyable do you find running fast ?

very enjoyable	enjoyable	O.K.	 not that enjoyable	not enjoyable at all
I do not run				

6. Have you had fun doing _____ ?

great fun	just fun	O.K.	 not much fun	 no fun at all

7. Is riding your bike enjoyable ?



8. Your experiences in _____ before have been ?

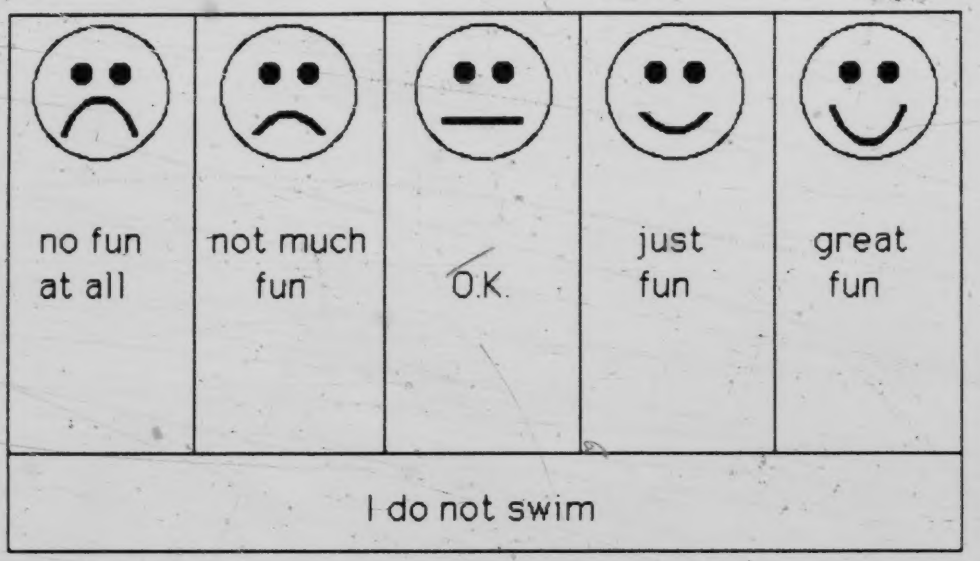
9. Have your experiences in skating been :

really good	fairly good	O.K.	not so good	pretty bad
I do not skate				

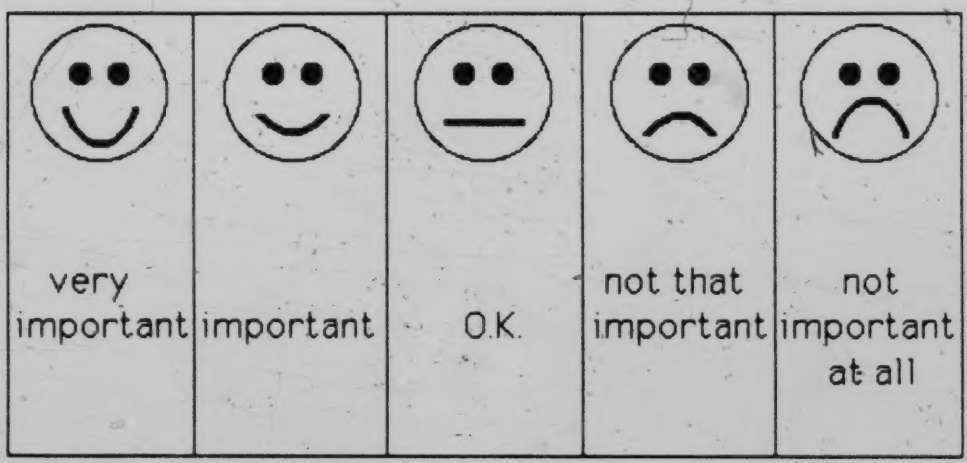
10. How much do you enjoy _____ ?

not enjoyable at all	not that enjoyable	O.K.	enjoyable	very enjoyable

11. Is swimming fun ?



12. Has _____ been important to you in the past ?



13. Are you going to play _____ a lot ?

all the time	often	some-times	hardly ever	never

14. How much more will you try to practice _____ ?

a lot more	a little more	once in a while	hardly ever	never

15. How much more do you want to do _____ again ?

never	hardly ever	some-times	often	a lot more

16. Will you try to ride your bike more ?

a lot more	a little more	some-times	hardly ever	never

17. Would you play or practice _____ on your own ?

all the time	often	once in a while	hardly ever	never

18. How much do you want to do _____ again?

a lot more	a little more	some-times	hardly ever	never

19. Are you willing to go swimming ?

never	rarely	once in a while	often	all the time

20. How much more will you try to practice _____ ?

never	rarely	some-times	often	a lot more

21. Do you hope to get more time skating ?

a lot more	a little more	some more	hardly none	none at all

22. Are you going to play _____ a lot ?

all the time	often	some-times	hardly ever	never

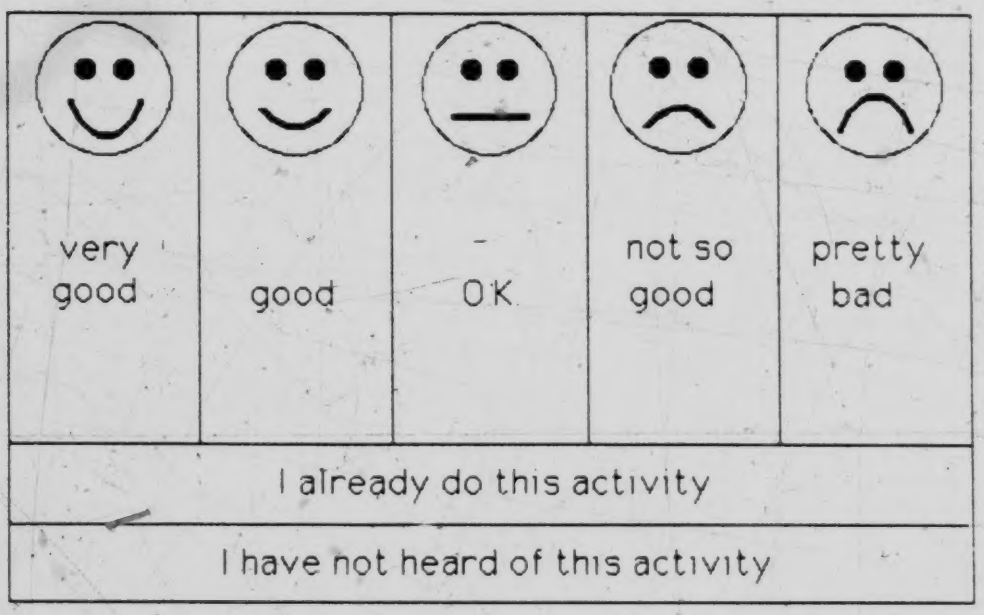
23. Would you play or practice _____ on your own ?

never	rarely	once in a while	often	all the time

24. Are you willing to run fast ?

all the time	often	once in a while	rarely	never

Using these choices answer the following questions



How good do you think you would be at _____?

25. Speed-skating

26. Curling

27. Hiking

28. Down-hill skiing

29. Ringette

30 Running a marathon

31. Karate

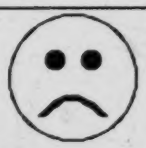
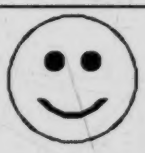
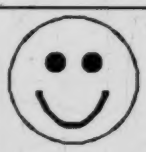
32. Canoeing

33. Water skiing

34. Weight-lifting

35. Broomball

Using these choices answer the following questions :

not well at all	 not that well	O.K.	 well	 really well
I already do this activity				
I have never heard of this activity				

How well do you think you would do at _____?

36. Canoeing

37. Down-hill skiing

38. Curling

39. Karate

40. Weight-lifting

41. Broomball

42. Running a marathon

43. Speed-skating

44. Hiking

45. Water-skiing

46. Ringette

APPENDIX VII

The Physical Activity Preference Sheet

Name _____

Age _____ Girl ☐ Boy ☐

Grade _____

your best performed physical activities	your worst performed physical activities
your least favourite physical activities	your favourite physical activities

APPENDIX VIII

The PAPQ Answer Sheet

NUMBER _____ AGE_____ M F GRADE _____

1 (B#1)	5	4	3	2	1	
1a.(B#2)	5	4	3	2	1	
1b.(B#3)	5	4	3	2	1	
2 (B)	5	4	3	2	1	
3 (B)	5	4	3	2	1	
4 (B#1)	1	2	3	4	5	
4a.(B#2)	1	2	3	4	5	
4b.(B#3)	1	2	3	4	5	
5	5	4	3	2	1	0
6 (W)	5	4	3	2	1	
7	5	4	3	2	1	0
8 (W#1)	5	4	3	2	1	
8a.(W#2)	5	4	3	2	1	
8b.(W#3)	5	4	3	2	1	
9	5	4	3	2	1	0
10 (W)	1	2	3	4	5	
11	0	1	2	3	4	5
12(W#1)	5	4	3	2	1	
12a(W#2)	5	4	3	2	1	
12b(W#3)	5	4	3	2	1	
13 (B#1)	5	4	3	2	1	
13a(B#2)	5	4	3	2	1	
13b(B#3)	5	4	3	2	1	
14 (B)	5	4	3	2	1	
15 (B)	1	2	3	4	5	
16	5	4	3	2	1	
17.(B#1)	5	4	3	2	1	
17a(B#2)	5	4	3	2	1	
17b(B#3)	5	4	3	2	1	
18 (W)	5	4	3	2	1	
19	1	2	3	4	5	
20 (W)	1	2	3	4	5	
21	5	4	3	2	1	
22.(W#1)	5	4	3	2	1	
22a(W#2)	5	4	3	2	1	
22b(W#3)	5	4	3	2	1	
23.(W#1)	1	2	3	4	5	
23a(W#2)	1	2	3	4	5	
23b(W#3)	1	2	3	4	5	
24	5	4	3	2	1	
25	5	4	3	2	1	0 nh
26	5	4	3	2	1	0 nh
27	5	4	3	2	1	0 nh
28	5	4	3	2	1	0 nh
29	5	4	3	2	1	0 nh
30	5	4	3	2	1	0 nh
31	5	4	3	2	1	0 nh
32	5	4	3	2	1	0 nh
33	5	4	3	2	1	0 nh
34	5	4	3	2	1	0 nh
35	5	4	3	2	1	0 nh
36	nh	0	1	2	3	4 5
37	nh	0	1	2	3	4 5
38	nh	0	1	2	3	4 5
39	nh	0	1	2	3	4 5
40	nh	0	1	2	3	4 5
41	nh	0	1	2	3	4 5
42	nh	0	1	2	3	4 5
43	nh	0	1	2	3	4 5
44	nh	0	1	2	3	4 5
45	nh	0	1	2	3	4 5
46	nh	0	1	2	3	4 5

APPENDIX IX

The Probe Question Sheet

1. How often do you play or do _____?

2. What happened the first time you tried _____?

3. Give me another word for 'best performed' and also 'favourite? Explain the difference?

4. Do your friends do the same physical activities as you? Is it important that they do the same physical activities?

5. Most people who are important to me think

I should_____ : _____ : _____ : _____ : _____I should not perform physical activities?

6. Do you take notice of what your _____think you should do ?

Parents A lot_____ : _____ : _____ : _____ : _____A little

Best friends A lot_____ : _____ : _____ : _____ : _____A little

Teachers A lot_____ : _____ : _____ : _____ : _____A little

Brothers A lot_____ : _____ : _____ : _____ : _____A little

Sisters A lot_____ : _____ : _____ : _____ : _____A little

7. Why do you participate in physical activities?

APPENDIX X

The results of the MANOVA (Group by Culturally Normative Activities

APPENDIX X

Results of MANOVA (Group by Culturally Normative Activities)

Effect	Rao approximate *F*
Riding a Bike & Running Fast, Swimming, and Skating x Group	1.09
Group Contrasts	
Severely & Mildly Awkward	.36
Severely Awkward & Non-handicapped	2.09
Mildly Awkward & Non-handicapped	1.62

APPENDIX XI

The Results of the MANOVA (Age Groups by 'Best' and 'Worst' Physical Activities)

APPENDIX XI

Results of MANOVA (Age Groups by 'Best' and 'Worst' Physical Activities)

Effect	Rao Approximate F
'Best' (B1, B2, B3) & 'worst' (W1, W2, W3) x Age groupings (Ages 7-8, 9-10, 11-12)	.73
Age Group Contrasts	
7-8 and 9-10	.89
7-8 and 11-12	.531
9-10 and 11-12	.72

APPENDIX XII

Maximum and Minimum Scores on the Physical Activity Performance Questionnaire

APPENDIX XII

Maximum and Minimum Scores on the Physical Activity Performance Questionnaire

Variables	Group 1[a]		2		3	
	Min.[b]	Max.	Min.	Max.	Min.	Max.
Worst 1	1	4	1	4	1	5
Worst 2	1	4	1	4	1	5
Worst 3	2	5	3	5	3	5
Best 1	2	5	3	5	4	5
Best 2	2	5	2	5	2	5
Best 3	1	5	4	5	3	5
Culturally Normative	3	5	3	5	3	5
Skating	1	4	1	4	2	5
Swimming	1	5	3	5	2	5

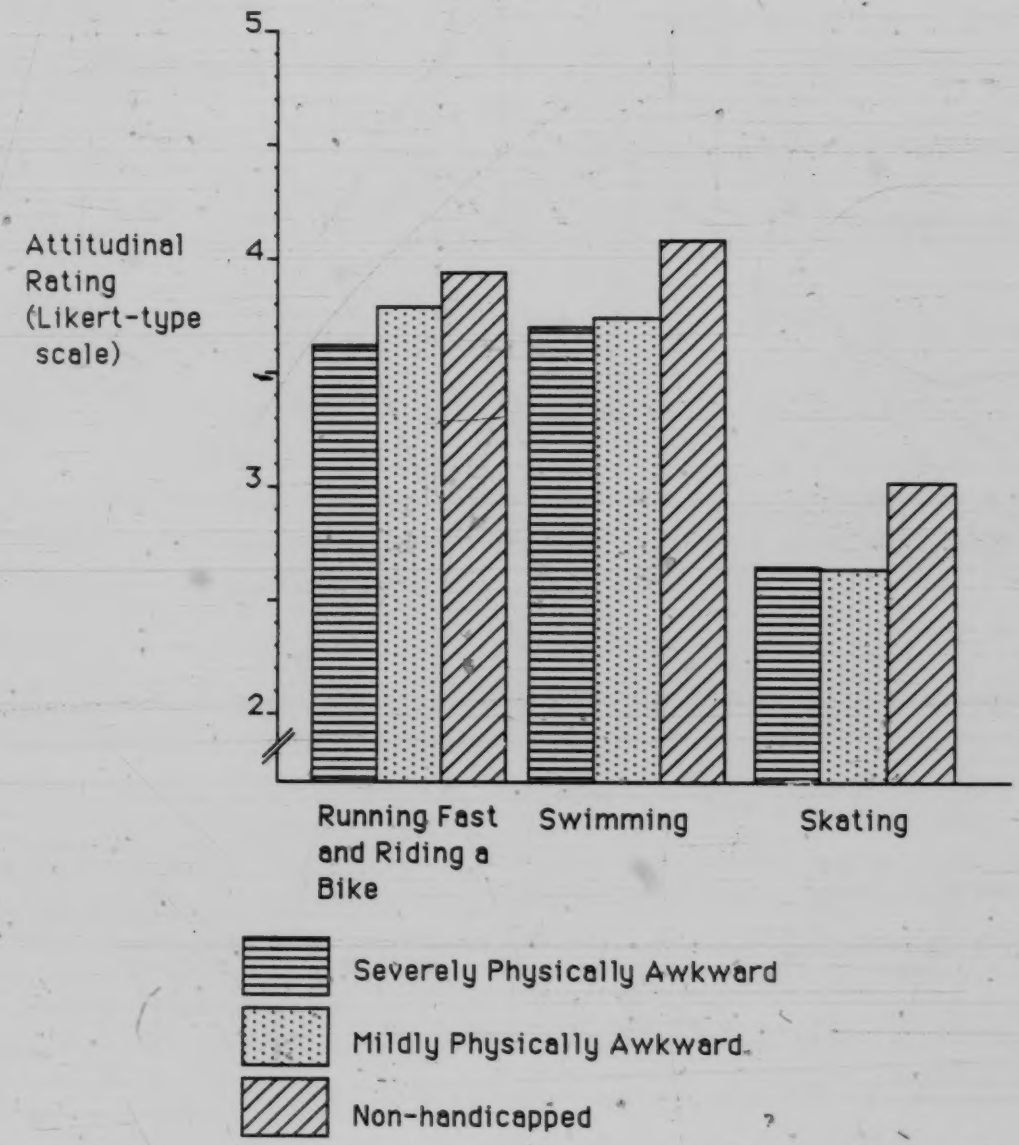
1[a] - Group: 1 - Severely Awkward; 2 - Mildly Awkward; 3 - Non-handicapped

Min.[b] - Minimum and Maximum scores reported for each group on all the questions associated with each variable.

APPENDIX XIII

Graphic Representation of the Group Means for the

Culturally Normative Physical Activities

APPENDIX XIII

Graphic Representation of the Group Means on the Culturally Normative Activities